State of Wyoming

Department of Health

Best Beginnings – Pregnancy Wellness Assessment Report
November 2003 – May 2004

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Introduction

The Pregnancy Wellness Assessment form was introduced to the Best Beginnings program and statewide use began in November 2003. The form serves two purposes: 1.) To guide the nurses in determining risk factors specific to each, individual client, thereby guiding referrals and follow-up; and 2.) To determine the prevalence of important risk factors affecting pregnant women in Wyoming. Monitoring risk factor trends will enable the state MCH program to better evaluate and respond to specific risks at the programmatic level. The eventual goal is to use this data to target appropriate interventions that will improve the health and well-being of Wyoming infants and families. The form collects information regarding medical history, nutrition, reproductive history, lifestyle history (including tobacco, alcohol and drug use), emotional well-being and family history of birth defects and genetic issues.

Methods

The form was created through the collaboration of the MCH state team and Public Health Nursing both at the state and local levels through the PHN forms committee. Additional collaborators were the Wyoming Attorney General's Office on Domestic Violence, the Substance Abuse Division and the Mental Health Division. When questions were similar to those used in other data collection systems, care was taken to replicate the questions exactly so as to be able to compare data across populations. Many of these questions were taken from the Maternal Outcome Monitoring System (MOMS), which is a population-based survey drawn from a random sample of Wyoming women who have given birth in the past 2-4 months. MOMS follows the same methodology as the nationally recognized CDC program, PRAMS. Other questions were replicated from the Wyoming Women's Reproductive Health Study (WWRHS), which collected data from women of reproductive age throughout Wyoming at public health nursing clinics, family planning clinics and private providers' offices.

Initial perceptions of the Pregnancy Wellness Assessment form revealed concern on the part of many public health nurses for the privacy and confidentiality of their patients. It was believed that many of the questions were too personal and invasive and would not be answered by the clients. The decision was made that the nurse could determine the appropriate time to go through the form with the client and could choose to skip parts of the form that were deemed to be potentially harmful to the relationship between nurse and client.

Completed Pregnancy Wellness Assessment forms were requested for all women seen by Best Beginnings prenatally. Clients complete forms with the assistance and support of public health nurses and data entry is completed at the WDH Community and Family Health Division Epidemiology Unit. Analysis was done for all forms entered between November 2003 and May 2004 using SPSS 12.0 (SPSS, Inc., Chicago, IL), representing 932 client responses. This report represents only the most basic, univariate analysis of the data, resulting in simple descriptive results. The data have not yet been linked to pregnancy outcomes; however, that will be the next step.

Results

Medical History:

A client's medical history is essential in determining the appropriate level of intervention and prenatal care. Many medical conditions can lead to adverse pregnancy outcomes if not managed and treated in a timely and appropriate fashion. Eighty-four and a half percent[1] of Wyoming women enter prenatal care in the first trimester, and the Best Beginnings program is often the first contact with a health care provider for many women. Early assessment of medical conditions should lead to suitable and well-timed referrals to medical specialists when required.

The top five medical risk factors that Wyoming BB clients reported having now and/or being in treatment for were allergies (26.8%), dental caries (25.2%), emotional/mental health issues

(14.6%), asthma (9.2%) and chronic stomach/bowel problems (6.3%). The most commonly reported medical conditions that women reported having in the past were dental caries (39.4%), emotional/mental health issues (15.6%), sexually transmitted diseases (9.8%), high blood pressure (6.6%) and asthma (6.1%). With the exception of the allergy category, for which 18.8% of the forms had missing data, the rate of missing or unknown data for medical history ranged from 2.4% to 3.9%, which is excellent.

The prevalence of current drug use (prescription or over-the-counter) was 67.2%, with more than half of those (54.2%) being vitamins. Other commonly reported drugs were medications used to treat mental health conditions (9.2%), over-the-counter pain medications (5.8%), antibiotics (4.7%), asthma medications (4.5%), and both prescription and over-the-counter allergy/cold medications (3.9%). While 2/3 of those reporting over-the-counter pain medication were using Tylenol, which is allowed during pregnancy, 1/3 were using Aspirin, Aleve or Motrin, which are contraindicated during pregnancy. Only 3.1% of the forms had missing or unknown data for current medication use and about half of those reporting current use listed one or more medications. Approximately 47% of women reported using a prescription medication in the past year, and 18.9% of the forms had missing or unknown data for that field.

Nutrition:

Nutrition plays a key role in the health of the mother, as well as the health and development of the baby prenatally and postnatally for nursing mothers. Recent research both in Wyoming[2] and in Colorado[3] has shown that the leading risk factor for low birth weight in these states is inadequate maternal weight gain. Preliminary analysis of the 2003 MOMS survey reveals that 30.3% of Wyoming mothers gained an inadequate amount of weight during pregnancy, according to the Institute of Medicine recommendations. In this sample of Best Beginning prenatal clients, 35.6% thought they were overweight, 28.9% were concerned about weight gain during pregnancy, and 21.2% were worried about not getting enough food for herself or her family. About half (50.6%) of the women reported currently using WIC. Of those, 70.9% reported using WIC themselves, while 37.2% reported using it for their children.

There was quite a discrepancy between results from the Pregnancy Wellness Assessment forms and the 2003 MOMS survey regarding regular prenatal vitamins. According to data from the Wellness forms, 69.0% of women regularly took a prenatal vitamin, while only 46.9% or MOMS respondents reported that they took a prenatal vitamin. However, 88.1% of women surveyed by MOMS reported that the correct reason for taking a vitamin with folic acid was to prevent birth defects. Fields with missing and unknown data represented only 3.1% - 3.9% of the cases.

Research has shown that excessive intake of beverages containing caffeine may cause premature delivery. About 70% of women screened reported drinking beverages containing caffeine; however, 91.7% of those women reported drinking 3 or less cups or cans of such beverages per day. Research has shown that moderate caffeine intake (< 300 mg. per day or 2 – 2.5 cups of coffee per day) has no adverse affects on pregnancy. Tea, hot chocolate and soft drinks have less caffeine than coffee. This analysis did not separate caffeine intake by type of beverage.

Reproductive Health:

The Reproductive Health section of this form was the most contentious when the form was introduced, as some nurses felt that the questions were too personal and could harm the relationship they were trying to build with their clients. The questions are very personal and do require quite a bit of sensitivity on the part of the nurse; however, they are essential to determining very important risk factors that may affect the outcome of the pregnancy. All women answering these questions have the right to skip any question(s) that they may not be comfortable answering. Overall, the majority of questions in this section reflected a

rate of missing or unknown data ranging from 4.0% to 7.0%. The fields with the highest percentage of missing data were:

- Have you ever had an infant with a birth defect? (27.1%);
- Type of Prenatal Care Provider (13.7%);
- Number of Lifetime Sexual Partners (12.1%); and
- Do you plan to breastfeed? (11.8%).

Prenatal Care:

Early, appropriate and continuous prenatal care is vital to having a healthy pregnancy outcome[4]. According to vital statistics, in 2002, 84.5% of women with live births in Wyoming entered prenatal care (PNC) in the first trimester of pregnancy compared to 83.7% nationally. This represents minimal change from 1990, when 80.5% of women with live births entered PNC in the first trimester. **The Healthy People 2010 goal is for 90% of pregnant women to initiate PNC in the first trimester[4].**

The Pregnancy Wellness Assessment form monitors entry into prenatal care for Best Beginnings clients. The mean number of weeks of the first PNC visit for BB clients was 8.9 weeks. Nearly 70% of BB clients received prenatal care in the first trimester, 7.8% received their first visit in the second trimester, and 1.3% did not receive their first visit until the third trimester. Nineteen percent had not received a prenatal care visit at the time the form was completed; however, Best Beginnings often is the first contact a newly pregnant woman makes with the health care system. Best Beginnings nurses refer women who have not yet been seen to a prenatal care provider; therefore, it is probable that the majority of the 19% who had not yet been seen were seen soon after the form was completed, and may very well have been seen within the first trimester.

The majority of providers (61.9%) were reported to be obstetricians/gynecologists. About 1/5 (21.2%) were family practice doctors and 3.2% were nurse practitioners/midwives. Fields with missing or unknown data represented 13.7% of cases.

Pregnancy History:

For half of the women represented (50.1%), this was their first pregnancy. An additional 42.2% were having their 2nd to 4th pregnancy. The remaining 7.7% were in their 5th or greater pregnancy.

For those women who were in their second or subsequent pregnancy, 41.5% reported having experienced at least one miscarriage (a pregnancy lost before 20 weeks), 1.9% reported having experienced at least one stillbirth (a baby born dead after 20 weeks gestation), and 12.2% reported having had at least one or more induced abortions.

The most common complications or adverse outcomes for multiparous women were the following:

Complication/Outcome	%
Bleeding during other pregnancies	23.3%
Less than 12 months since your last birth	18.8%
Early labor	18.6%
An infant weighing 5½ pounds or less at birth	15.0%
High blood pressure with other pregnancies	13.3%
A baby who was sick at birth	10.7%
An infant weighing more than 9 pounds at birth	5.8%
A baby that died before age 2	4.1%
Twins or other multiple births	3.4%
An infant with a birth defect	2.8%

Intendedness of Pregnancy:

Mothers whose pregnancies are unintended are less likely to seek timely or adequate prenatal care, less likely to breastfeed and are more likely to smoke or use drugs and/or alcohol. A child born as a result of an unintended pregnancy "is at greater risk of low birth weight, dying in its first year, being abused, and not receiving sufficient resources for healthy development". The cost of unintended pregnancy is high. Pregnancy care for one unintended pregnancy is estimated to cost $3200, and the direct health care costs for unintended births to U.S. teens exceeds $1.3 billion annually[4].

Only 28.1% of women represented in this sample were trying to get pregnant; however, 43.8% of those who were not trying to get pregnant also were not using any form of birth control. This compares to 50.3% of women in the MOMS sample who were trying to get pregnant and of those not trying to get pregnant from the MOMS sample, 54.4% were not using any form of birth control.

The most common contraceptives that women not trying to get pregnant reported using were condoms (30.5%) and oral contraceptives (18.4%). Of those not using anything, 30.8% believed that either they or their partner was sterile compared to 24.6% in the MOMS sample, 12.4% reported that cost was an issue (too expensive or not covered by insurance), 9.8% reported that it was "OK" if they got pregnant, 7.2% reported symptoms resulting from contraceptive use as a reason discouraging use, 5.8% reported inconsistent use or an inconsistent relationship, and 5.4% reported that her partner did not want her to use anything.

Sexual History:

Women who begin having intercourse at a young age have a higher risk of contracting sexually transmitted infections (STIs) and suffering more severe consequences of STIs, such as cervical dysplasia, as a result of both the physiology of the cervix and the lack of empowerment required to protect themselves adequately. Early onset of sexual activity can also represent sexual abuse. In this sample of Best Beginnings clients, 8.1% had lost their virginity before the age of 10, 17.0% between the ages of 10 and 14, and 64.1% between the ages of 15 and 19.

Having multiple sexual partners also increases the risk for contracting STIs and HIV. Of this sample, only 18.6% had had one lifetime sexual partner while 32.0% had two to four, 23.6% had 5 to 9 and 13.6% had had 10 or more lifetime partners. However, in the past year, 71.2% of clients had only one sexual partner, 19.6% had 2 to 4 and 1.7% had 5 or more partners.

A partner's sexual history and the motivation for having sexual intercourse also play a role in the risk to the woman. Of women in this sample, 3.2% reported having had sex in the past year with a person who injects non-prescription drugs, and 0.6% reported having sex with a man who may have had sex with men. Only 3 women or 0.3% reported having sex for money, drugs, shelter or food.

Parenting Options:

While only 28.1% of women were trying to get pregnant, 94.2% report that they plan to raise this baby and only 1.7% would consider placing this baby for adoption.

Overall, 77.2% plan to breastfeed this baby and 31.6% had breastfed a previous baby. For those that had breastfed, 15.9% did so for less than one month, 27.1% breastfed for 2 to 4 months, 20.3% breastfed for 4 to 8 months and 32.5% breastfed for 8 to 12 months.

Lifestyle History

"Smoking during pregnancy is linked to LBW, pre-term delivery, Sudden Infant Death Syndrome (SIDS), and respiratory problems in newborns. Smoking-attributable costs of complicated births in 1995 were estimated at between $1.4 billion nationally (11% of costs for all complicated births, based on smoking prevalence during pregnancy of 19%) and $2 billion (15% for all complicated births, based on smoking prevalence during pregnancy of 27%) Smoking is the greatest known risk factor for low birth weight[4].

According to Vital Statistics, in 2002, 20.7% of Wyoming women giving birth smoked during their pregnancy, compared with 11.4% nationally. The United States has seen a 42% drop in smoking during pregnancy since 1989, and a 7% drop between 1999 and 2000. While Wyoming has seen a significant decrease since 1989, the decrease has not been nearly as great as that of the US rate. Smoking during pregnancy has decreased by only 12% since 1989 and 2% since 1999. Further, birth certificate data are generally believed to underestimate the true number of smokers.

One recent Department of Health study in Wyoming found that 43% of the pregnant women enrolled in the study were current smokers[5]. **The Healthy People 2010 goal is to reduce the percentage of women smoking tobacco during pregnancy to no more than 2%[4].**

According to the Pregnancy Wellness Assessment forms, only 38.5% of Best Beginnings women had never smoked. Of those who had quit smoking (26.5%), about half had quit because of their pregnancy. Occasional smokers, those who responded that they smoked from time to time, made up 5.6% of the population, while 11.4% reported smoking now, and 15.2% reported smoking, but having decreased the amount that they smoked. Of those that reported having decreased, 87.9% reported that they did so due to their pregnancy.

The majority of smokers (66.0%), including those smoking from time to time, smoking now, and those who had decreased, had smoked for five or more years. Current smokers were the most likely to have smoked for the longest period of time.

Occasional smokers were the most likely to report not having smoked any cigarettes in the past week. The majority of all smokers (61.0%) reported smoking less than 10 cigarettes per day in the past week, while 22.6% reported smoking between ½ a pack and a full pack per day during the past week and 13.7% reported smoking more than one pack per day.

Exposure to environmental tobacco smoke (ETS) is dangerous to the pregnant women and her fetus, as well as to infants and children. Regardless of whether or not a woman smoked during pregnancy, many women reported being exposed to tobacco in their homes, cars and in the workplace. More than half (51.3%) of the women reported one or more smokers living in their home, although 68.3% reported that smoking was not allowed in their house. Thirty-one point seven percent reported someone other than themselves smoking in their car, and of those who work, 26.9% reported smoking being allowed in the workplace.

Alcohol use during pregnancy is linked with fetal death, low birth weight, growth abnormalities, mental retardation and Fetal Alcohol Syndrome (FAS)[4]. Self-reported alcohol use during pregnancy decreased in Wyoming by 82.6% from 1989 to 2001 (8.6% to 1.5%). Consequently the percentage of low birth weight births to women who reported drinking during pregnancy decreased 70.4% from 1989 to 2001 (10.8% to 3.2%). As the number of births to women who report drinking has gone down, the percentage of low birth weight babies born to women who do report drinking increased from 9.1% in 1989 to 13.6% in 1998. **The Healthy People 2010 goal for women who abstain from drinking during pregnancy is 94%[4].**

According to Vital Records data, Wyoming has achieved this goal; however, studies have shown that self-reported data is often not reliable. The 1999 Women's Reproductive Health Study demonstrated that self-report of drug and tobacco use varied greatly from results of lab tests. Preliminary data from the 2003 MOMS survey show that 4.7% of Wyoming women report having consumed alcohol in their third trimester.

Of Best Beginnings clients completing the Pregnancy Wellness Assessment form, 19.6% reported being alcohol drinkers. Of those, only 6.1% had their first drink at or after age 21. The majority (75.7%) reported drinking one or less drinks per week, while 10.5% reported drinking 2 to 5 drinks per week. Binge drinking is defined as having 5 or more alcoholic beverages within a few hours. The majority of women (80.1%) did not report binge drinking in the past 30 days; however 17.1% reported binge drinking one or more times in the past 30 days.

Illicit drug use during pregnancy can result in miscarriage, preterm delivery and/or placental abruption for the mother, and the baby can suffer side effects ranging from mild to severe

including stroke, brain damage, heart attack, birth defects, low birth weight, and death and may be at greater risk for mental retardation, behavioral problems and SIDS[6]. There is currently no standardized, population-based surveillance that monitors drug use during pregnancy. In 1999, the Women's Reproductive Health Study showed that rates of illicit drug use during pregnancy ranged from 7% for women ages 28 and older to 23% in women under 21 years.

Results from this analysis of the data from the Pregnancy Wellness Assessment forms demonstrates that the most commonly used drug for Wyoming women is marijuana: 38.0% reported ever using marijuana, most (90.7%) before the age of 20, and 13.3% had used marijuana in the past year. Methamphetamine is the second most commonly used drug for women in this sample: 12.1% report ever having used methamphetamine, 76.8% of those used for the first time before the age of 20, and 5.3% had used within the past year. Other commonly used drugs were cocaine, mushrooms, acid, ephedra, ecstasy and amphetamines. For all drugs, the most common age of first use is 15-19 years of age.

Less than 3% of all women reported using prescription drugs recreationally. The most commonly used was Vicodin (2.6%), followed by Oxycodone (2.1%), and Codeine (1.8%).

Emotional Wellbeing

"A number of studies have suggested that very high levels of stress may increase the risk of preterm labor and low birth weight. A 1999 study at the University of California Los Angeles School of Medicine found that women who reported high levels of stress at 18 to 20 weeks of pregnancy were more likely to have high levels of a hormone called corticotropin-releasing hormone (CRH) in their blood. This and other studies have found a potential link between high levels of CRH and preterm labor.

CRH, which is produced by the brain and the placenta, is closely tied to labor. It prompts the body to release chemicals called prostaglandins, which trigger uterine contractions. CRH also is the first hormone our brains secrete when we are under stress. Researchers continue to explore the possibility that women who experience high levels of stress early in pregnancy have elevated levels of CRH that set their placental clock for early delivery"[5].

The Pregnancy Wellness Assessment form tracks the emotional well-being and stressors of clients, including domestic violence and family issues. Approximately nineteen percent of clients had fears about being pregnant or giving birth, 71% always or usually felt strong, in control, upbeat, happy and able to cope with daily stress, while 8.8% always or usually felt weak, out of control, sad, down and unable to cope. An additional 29.5% sometimes felt that way.

Current Relationship:

Abuse or even lack of support in a relationship can greatly influence a woman's stress level, thereby causing a risk to her and her baby. Overall, 6.4% of women reported currently being in an abusive relationship. The most common abuser was her spouse or partner (84.7%), while 8.5% reported current abuse by a parent. The most commonly reported mechanisms of abuse were as follows:

Type of abuse – Current Abuse	N	%
Emotional Abuse	29	3.1%
Controlled	29	3.1%
Hit, slapped, pushed, kicked, physically hurt	20	2.2%
Partner violently and constantly jealous	14	1.5%
Prefer not to answer	12	1.3%
Sex against her will	11	1.2%
Afraid	10	1.1%
Prevented from using birth control	4	0.4%

A little over a quarter of the women (26.8%) reported having a gun in their house. There was no significant difference of gun ownership

between those being currently abused (23.7%) and those not being abused (27.0%).

Past Relationships:
The scars from abusive past relationships continue to affect survivors and can have an effect on their children. Abuse survivors are more likely to have subsequent abusive relationships, suffer from low self-esteem, substance abuse issues and abuse their own children. Overall, 25.7% of women reported abuse in a past relationship, most commonly at the hands of a spouse or partner (80.7%). An additional 12.6% reported abuse by parents and 4.6% reported abuse by other household members. The most commonly reported forms of abuse were emotional (17.6%), physical (15.2%) and the feeling of being controlled (14.2%). Just over 10% of women report having had sex against their will.

Stressors:
"When physical or emotional stress builds up to uncomfortable levels, it can be harmful for pregnant women. In the short term, a high level of stress can cause fatigue, sleeplessness, anxiety, poor appetite or overeating, headaches and backaches. When a high level of stress continues for a long period, it may contribute to potentially serious health problems, such as lowered resistance to infectious diseases, high blood pressure and heart disease. Studies also suggest that high levels of stress may pose special risks during pregnancy." "A number of studies have suggested that high levels of stress may contribute to pregnancy complications like preterm labor and low birth weight"[5].

Best Beginnings clients reported experiencing quite a few stressors in past year. More than half (56.2%) reported experiencing one to four stressors and 29.1% reported five to nine. The most common stressors were moved to a new address (60.1%), started a new job (39.2%), had a lot of bills that could not be paid (36.5%), had a close family member who was sick and hospitalized (27.2%), got engaged or married (26.9%), someone close to them had a drug or alcohol problem (21.2%) and someone close to them died (21.0%). These results were similar to those found in the 2003 MOMS survey.

Along with other stressors, a history of post-partum depression during previous pregnancies is a risk factor for post-partum depression following the current pregnancy, and providers need to be aware of this risk as soon as possible, in order to encourage proper intervention. Of women who had previous live births, 35.5% had experienced post-partum depression previously.

Family Situation:
The majority of Best Beginnings clients (61.1%) were raised by both parents, while 25.8% were raised by a single parent, 3.1% by a grandparent and 5.0% by another person. More than 90% had mothers who were still living, and 70.1% reported having a close relationship with their mother.

Family History
The most commonly reported birth defect in either parent's family history was heart defects (14.6%), followed by genetic diseases (8.7%), other birth defects (8.7%), cleft lip/palate (3.9%) and neural tube defects (1.9%). Most women knew their own family history, only 1.6% reported not knowing; however, 12.2% did not know the father's family history.

Other:
Other information collected refers to tier level assigned, county of residence and if there were any cultural, language, religious or personal barriers. Most of the women were in either tier one (36.3%) or tier two (37.3%), while 12.9% were tier three. However, tier level data were missing for 13.5% of the respondents.

Very few women reported any barriers to their care, but of those who did, the most common barriers were language/cultural (2.6%) and religious (1.7%).

All but two counties turned in at least one or more Pregnancy Wellness Assessment forms. The name of the county was missing for 6.5% of respondents. The percentage of forms

received by county is reported in the following table:

County	n	%	County	n	%
Albany	111	11.9%	Lincoln	12	1.3%
Big Horn	25	2.7%	Natrona	130	13.9%
Campbell	74	7.9%	Park	11	1.2%
Carbon	27	2.9%	Platte	12	1.3%
Converse	7	0.8%	Sheridan	12	1.3%
Crook	15	1.6%	Sweetwater	33	3.5%
Fremont	58	6.2%	Teton	57	6.1%
Goshen	17	1.8%	Uinta	147	15.8%
Hot Springs	1	0.1%	Washakie	18	1.9%
Johnson	28	3.0%	Weston	4	0.4%
Laramie	72	7.7%	Missing/ Unknown	61	6.5%

Discussion:
The information collected in the Pregnancy Wellness Forms is essential to effective management of Best Beginnings clients. The majority of forms is completed accurately, with very little missing information, and thus serves to support the nurses in determining the risks faced by their clients, as well as the referrals needed.

Current research has demonstrated a link between inadequate maternal weight gain and low birth weight infants. Therefore, it is concerning that 59.2% of women reported on the Pregnancy Wellness Assessment they perceived themselves to be overweight or were concerned about weight gain during pregnancy. It is important to continue to provide education and support to women regarding the necessity of adequate weight gain in pregnancy, in order to decrease the risk of having a low birth weight baby.

An opportunity to affect the current, as well as future pregnancies is apparent, since a great majority (91.6%) of pregnant women reported on the Pregnancy Wellness Assessment they were either in their first pregnancy or in a subsequent pregnancy after experiencing a miscarriage. The importance of the BB contacts with pregnant women, including education, support and appropriate referral is critical to healthy birth outcomes. And, even though the Pregnancy Wellness Assessment questions are very sensitive and personal, answers to the majority of questions are provided by the client, and reported on the form.

It is of great concern that a majority (43.8%) of postpartum women who are not trying to get pregnant are not necessarily using birth control to prevent pregnancy. Subsequently, 30.8% of those women reported post-partum that they did not think they could get pregnant. This demonstrates a tremendous educational need, which can be addressed by PHN staff during prenatal visits, as well as appropriate referral to family planning services.

Since there is a link established between smoking during pregnancy and low birth weight, it is encouraging that 26.9% of women have quit or cut down smoking due to the pregnancy. Support and referral to community cessation projects are imperative to increase numbers of women who decrease smoking during pregnancy, thereby decreasing risk to the infant. Additionally, 68.3% of pregnant women who have filled out the Pregnancy Wellness Assessment report smoking is not allowed anywhere in their home, and 60.8% do not allow smoking in the car with them. This is significant, since this protects themselves and their infant from second hand smoke. It is imperative to partner with other programs in communities to assure adequate support for pregnant women who chose to decrease their tobacco intake to protect their baby, both as a fetus and as an infant, as demonstrated in systems building and coalition building activities of BB Coordinators.

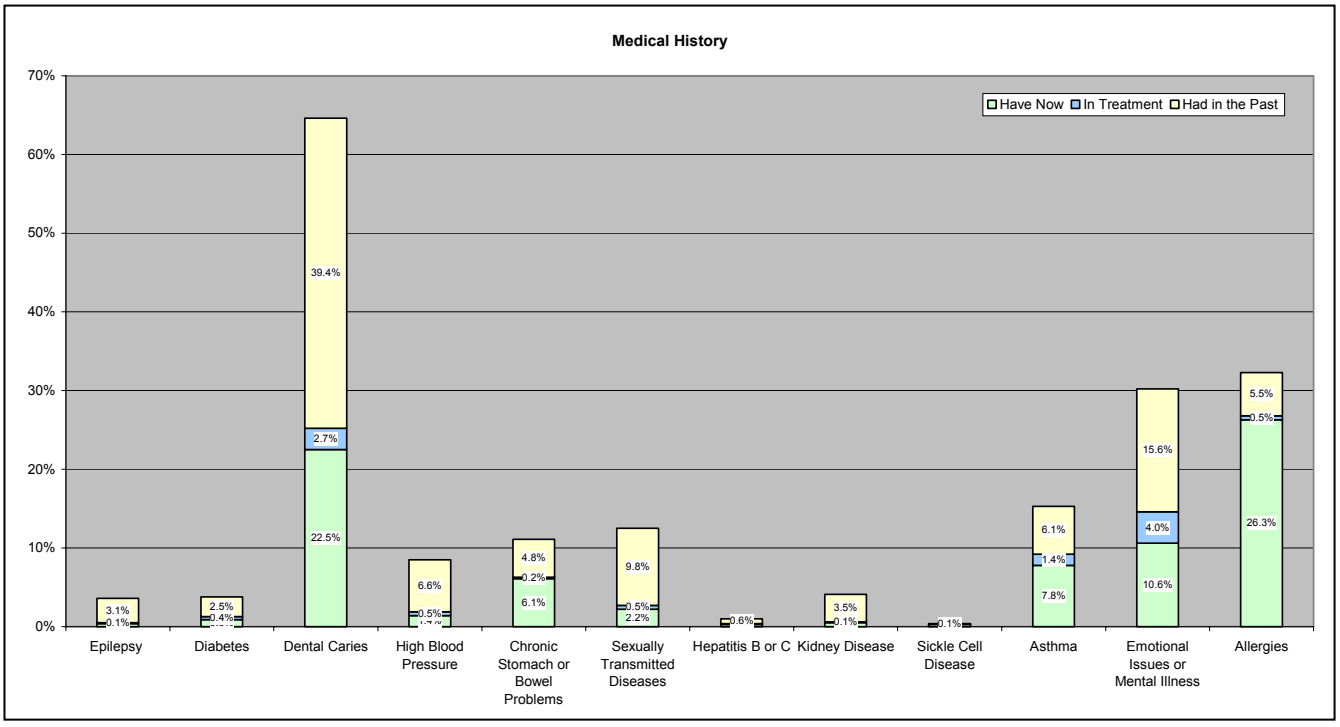
Even though there are pregnant women who report drinking alcohol in pregnancy, there is a majority who either report drinking less than one drink per week (75.7%) or no binge drinking at all (80.1%). While no alcohol exposure in pregnancy is recommended for optimal (healthiest) pregnancy outcomes, the less alcohol during pregnancy, in the least concentration is believed to be less harmful than heavy/binge drinking. Again, this demonstrates the need to continue education and support for pregnant women regarding risks of alcohol exposure in pregnancy, as well as collaboration with other agencies and

entities that also focus on healthy pregnancy outcomes.

The fact that at least 80% of women report abuse by spouse or partner in a past or current relationship is highly concerning, since abuse has been associated with adverse pregnancy outcomes. Screening for domestic violence, as well as appropriate referral to treatment and/or a safe environment is critical to enhance the chance of a healthy pregnancy outcome.

With 36.3% of women determined to be Tier 1, the overextended public health nurses may find it useful to focus their efforts on the higher risk clients who are tier 2 or 3 (keeping in mind that for 13.5% clients, tier levels are missing or unknown). In that way, efforts can be used to provide education, support and referral to those who are in the greatest need for assistance to have a healthy pregnancy outcome.

Appendices


Medical History
Have Now
In Treatment
Had in the Past
70%
60%
50%
40%
30%
20%
10%
0%
3.1%
0.1%
2.5%
0.4%
39.4%
2.7%
22.5%
6.6%
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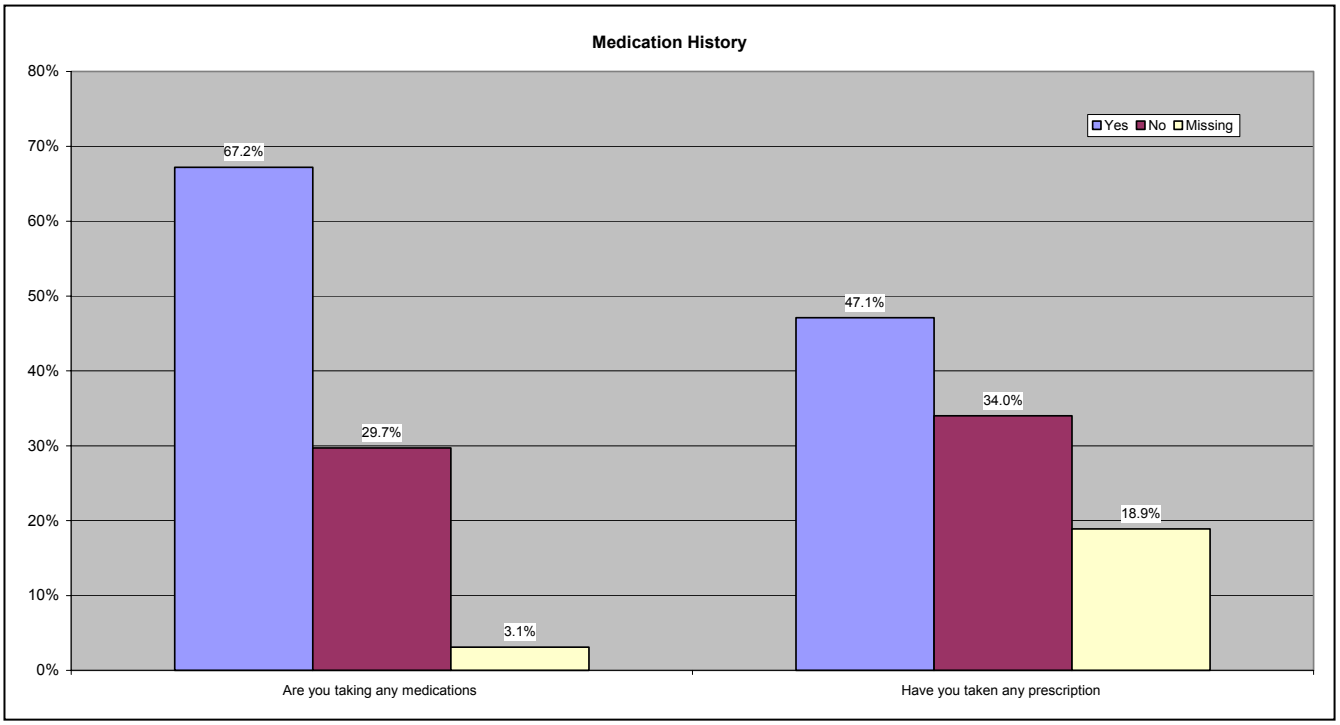
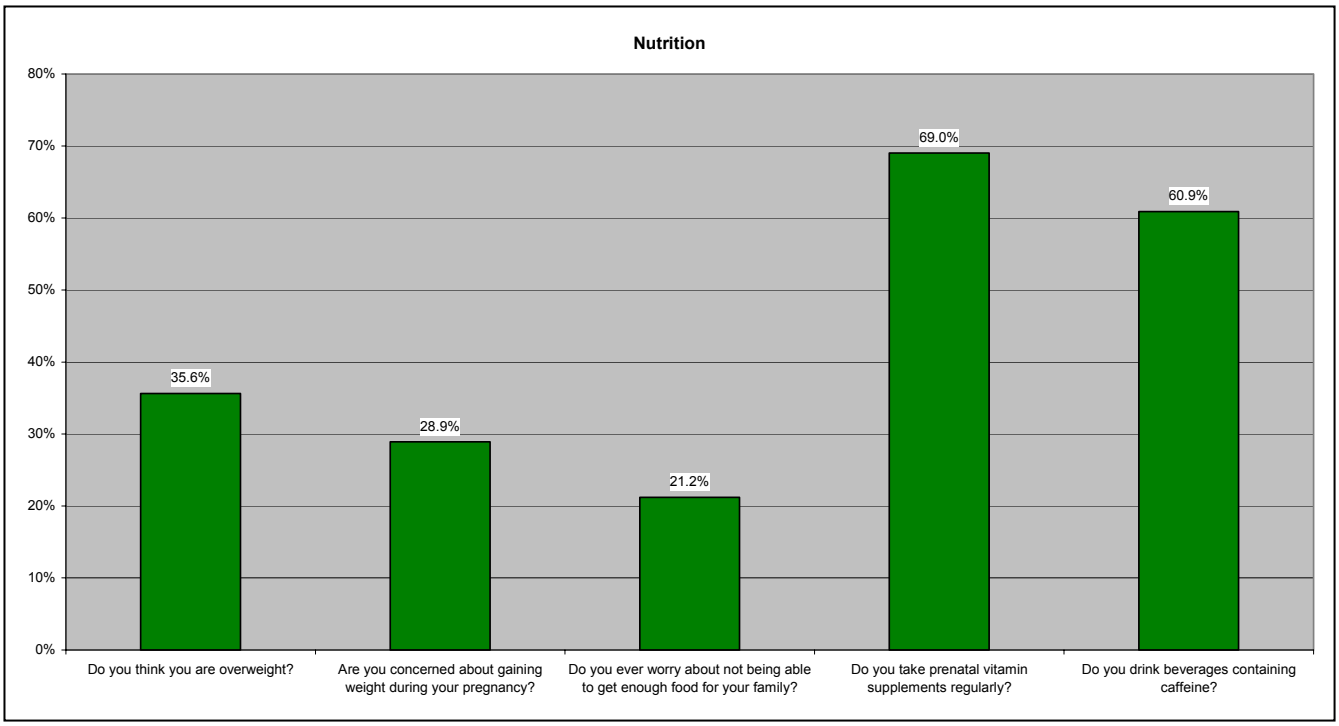
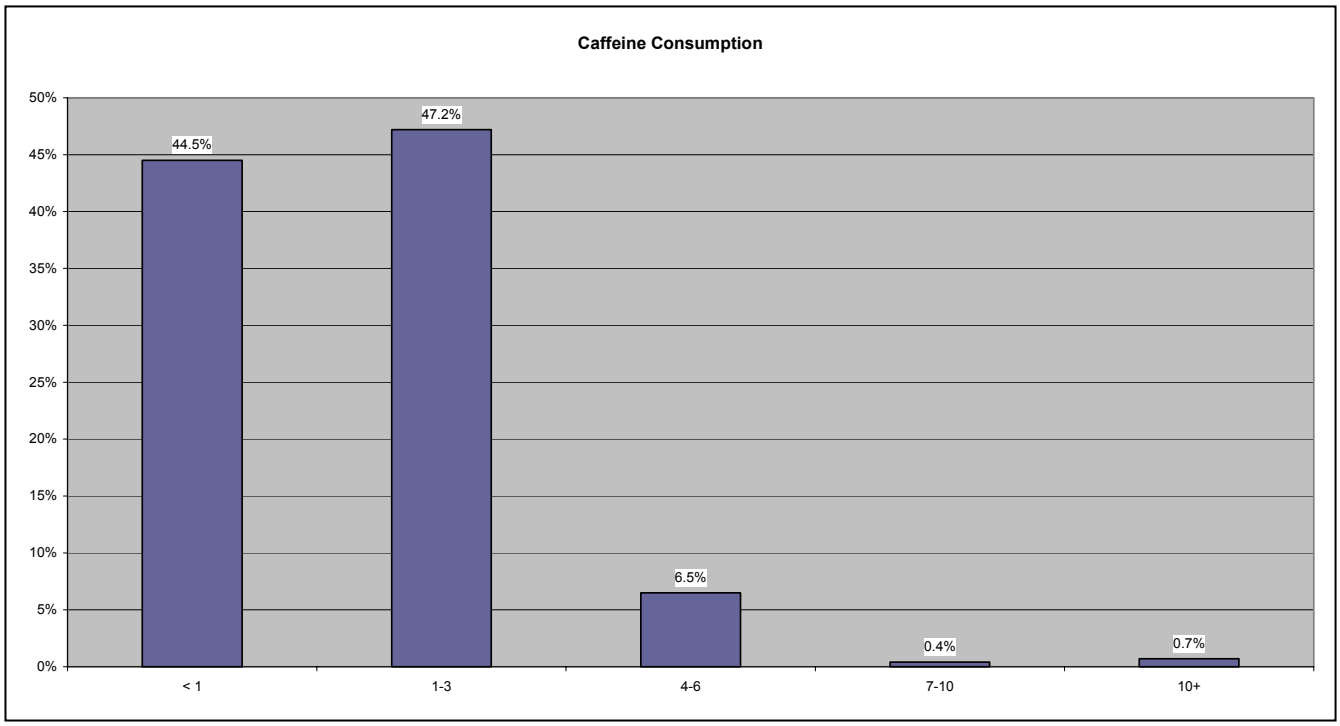
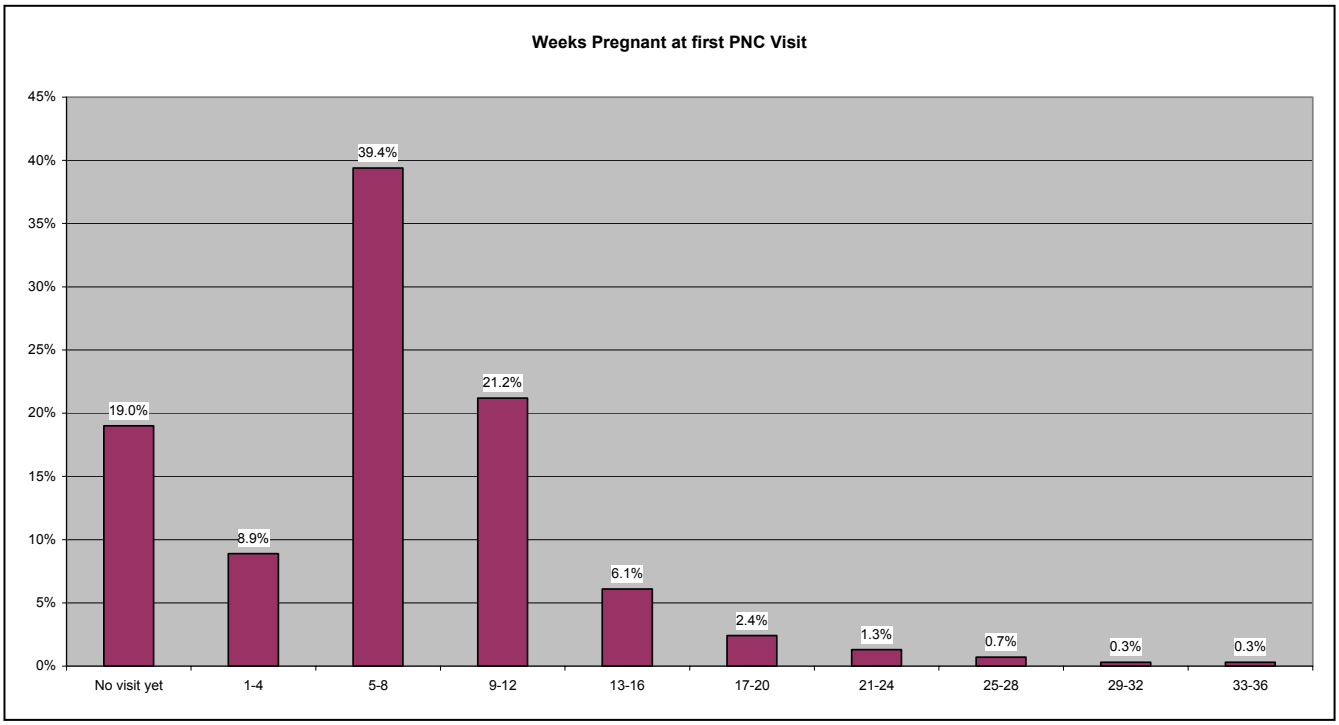
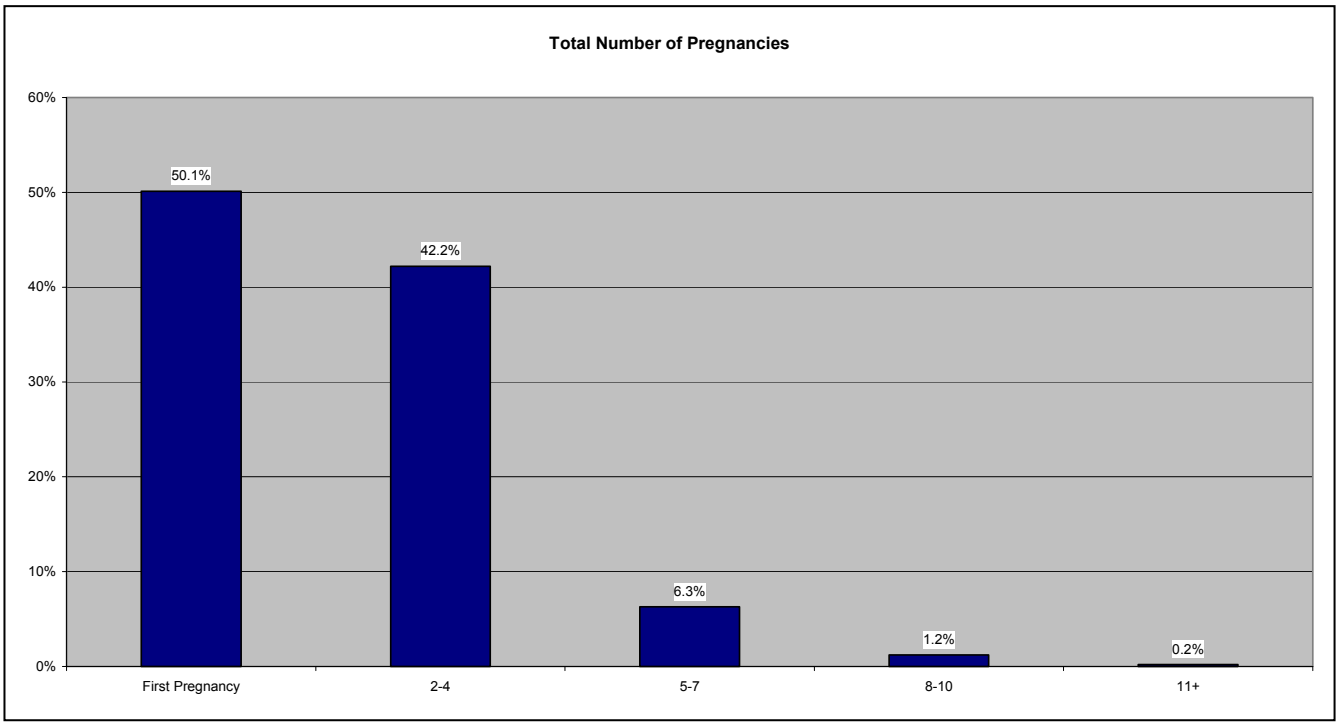
10.6%
5.5%
0.5%
26.3%
Epilepsy
Diabetes
Dental Caries
High Blood Pressure
Chronic Stomach or Bowel Problems
Sexually Transmitted Diseases
Hepatitis B or C
Kidney Disease
Sickle Cell Disease
Asthma
Emotional Issues or Mental Illness
Allergies

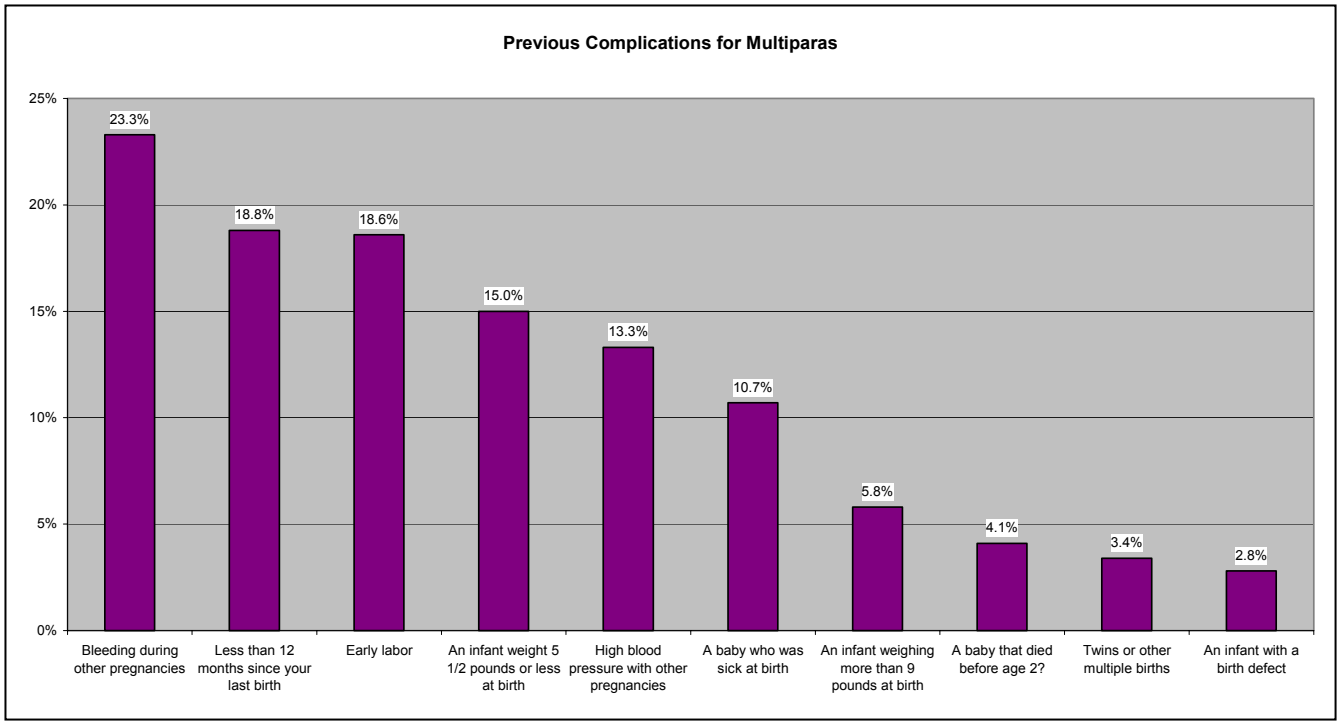

Medication History
Yes
No
Missing
80%
70%
60%
50%
40%
30%
20%
10%
0%
67.2%
29.7%
3.1%
47.1%
34.0%
18.9%
Are you taking any medications
Have you taken any prescription

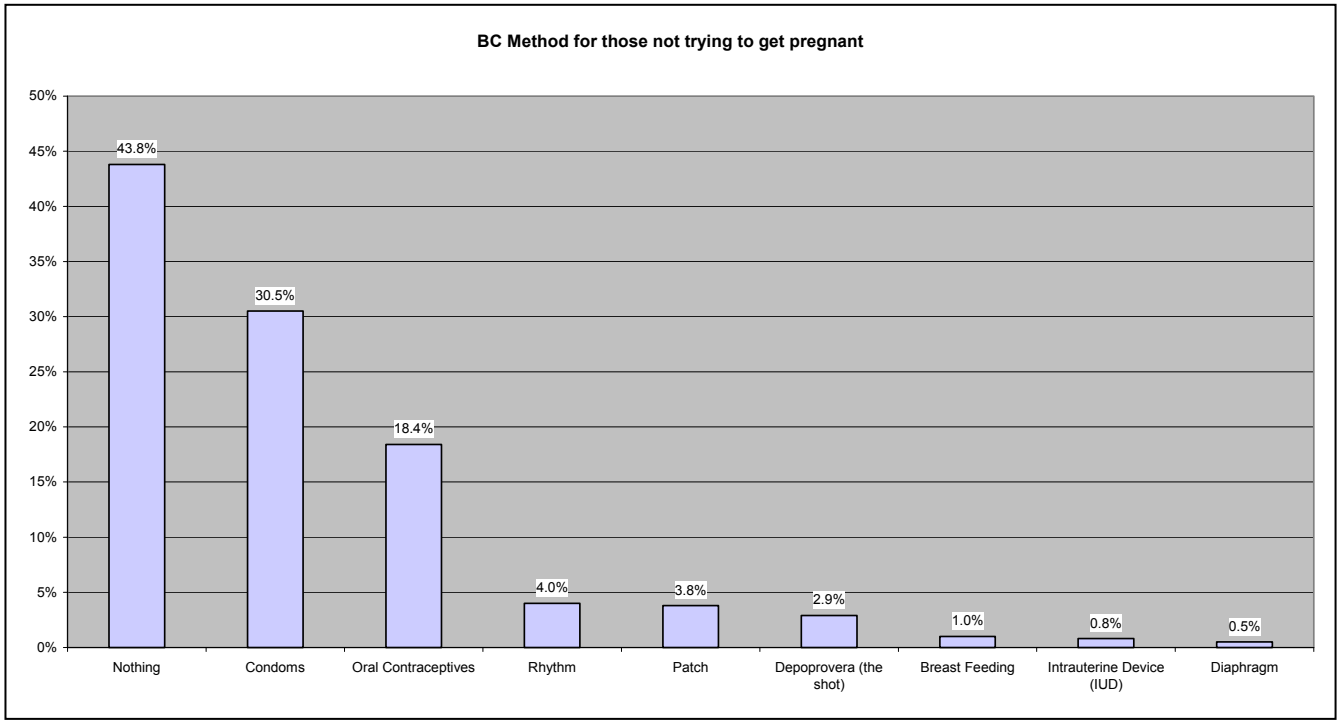

Nutrition
80%
70%
60%
50%
40%
30%
20%
10%
0%
35.6%
28.9%
21.2%
69.0%
60.9%
Do you think you are overweight?
Are you concerned about gaining weight during your pregnancy?
Do you ever worry about not being able to get enough food for your family?
Do you take prenatal vitamin supplements regularly?
Do you drink beverages containing caffeine?

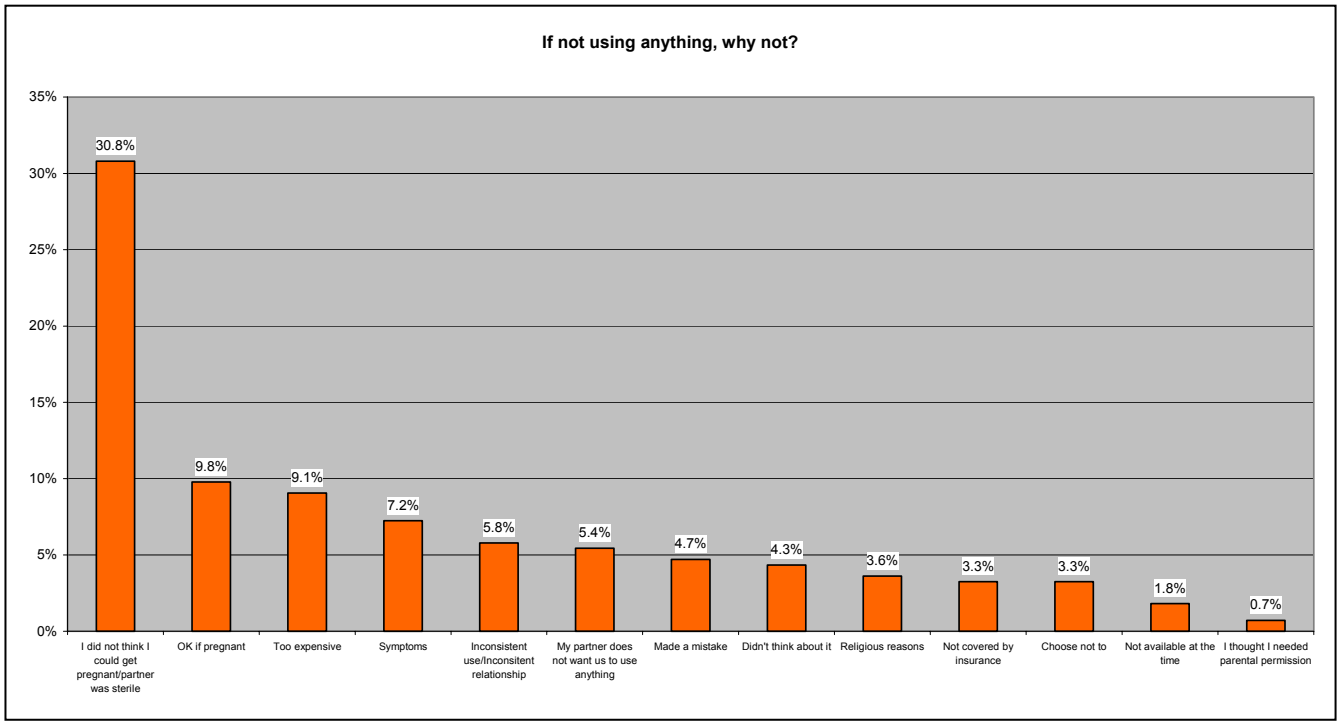

Caffeine Consumption
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
44.5%
47.2%
6.5%
0.4%
0.7%
< 1
1-3
4-6
7-10
10+

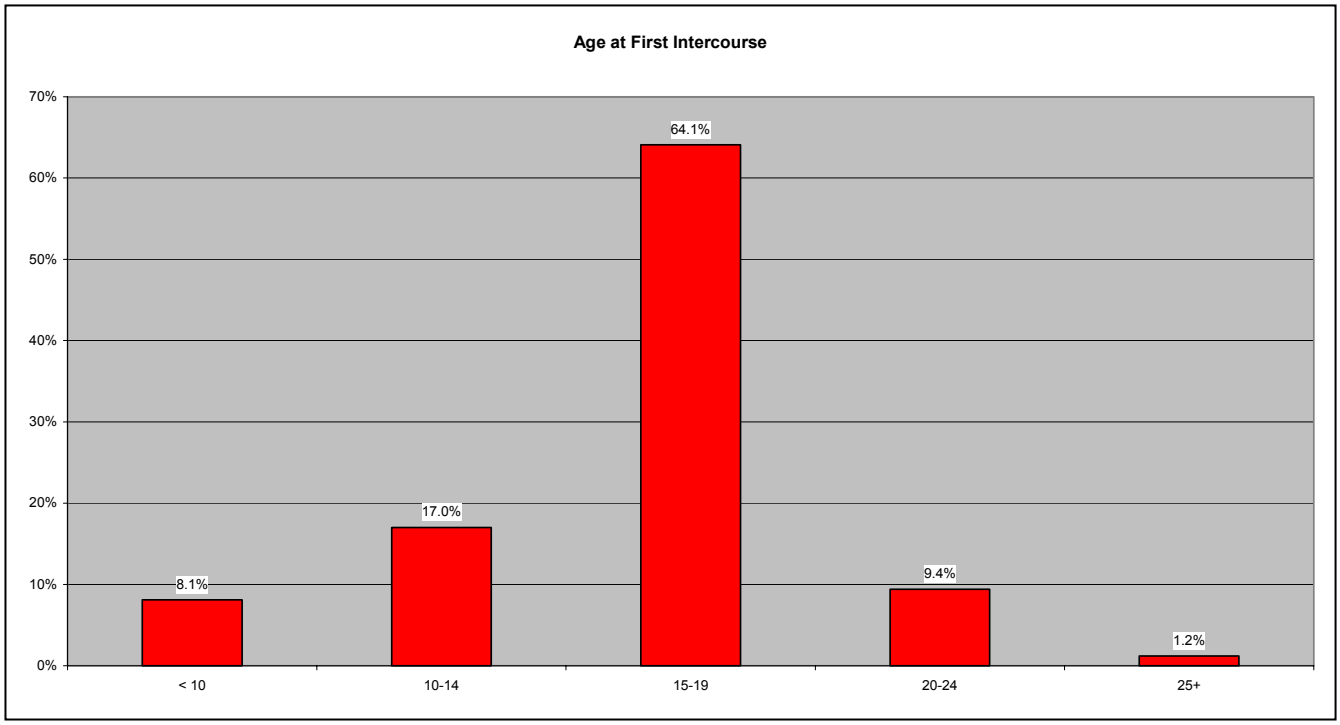

Weeks Pregnant at first PNC Visit
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
19.0%
8.9%
39.4%
21.2%
6.1%
2.4%
1.3%
0.7%
0.3%
0.3%
No visit yet
1-4
5-8
9-12
13-16
17-20
21-24
25-28
29-32
33-36

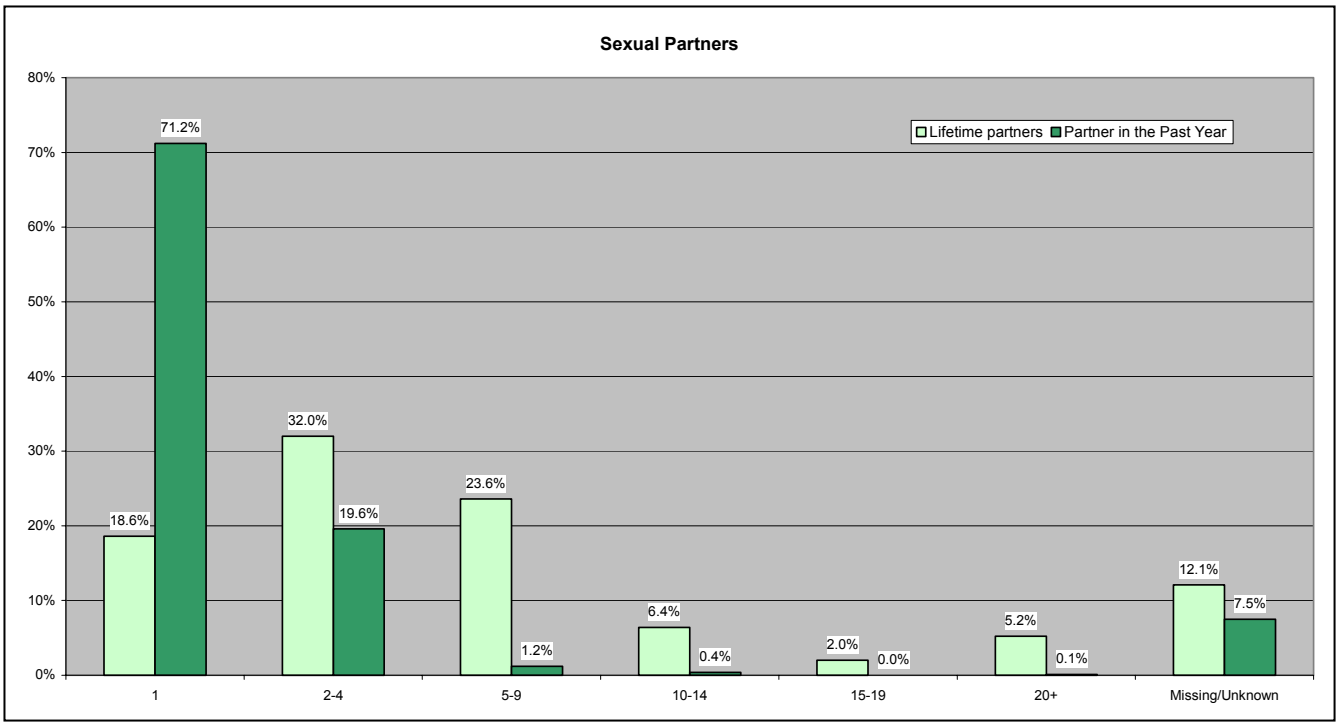

Total Number of Pregnancies
60%
50%
40%
30%
20%
10%
0%
50.1%
42.2%
6.3%
1.2%
0.2%
First Pregnancy
2-4
5-7
8-10
11+

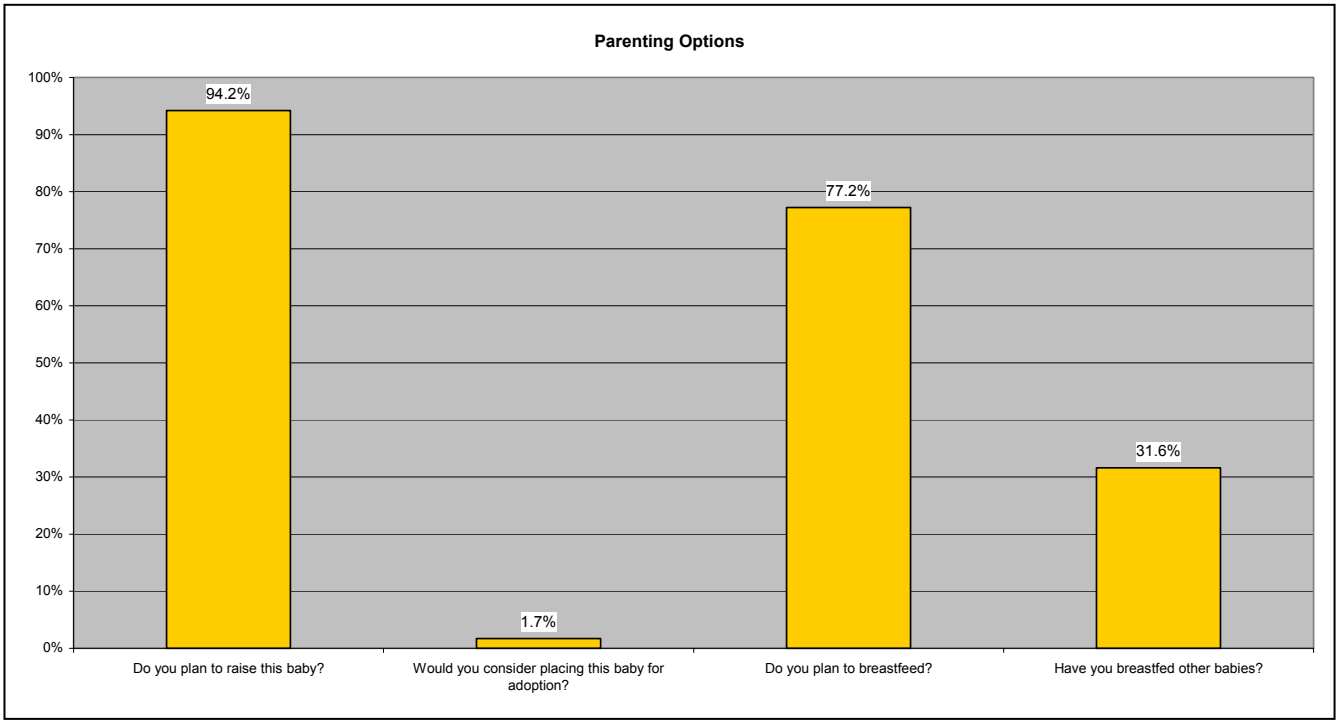

Previous Complications for Multiparas
25%
20%
15%
10%
5%
0%
23.3%
18.8%
18.6%
15.0%
13.3%
10.7%
5.8%
4.1%
3.4%
2.8%
Bleeding during other pregnancies
Less than 12 months since your last birth
Early labor
An infant weight 5 1/2 pounds or less at birth
High blood pressure with other pregnancies
A baby who was sick at birth
An infant weighing more than 9 pounds at birth
A baby that died before age 2?
Twins or other multiple births
An infant with a birth defect

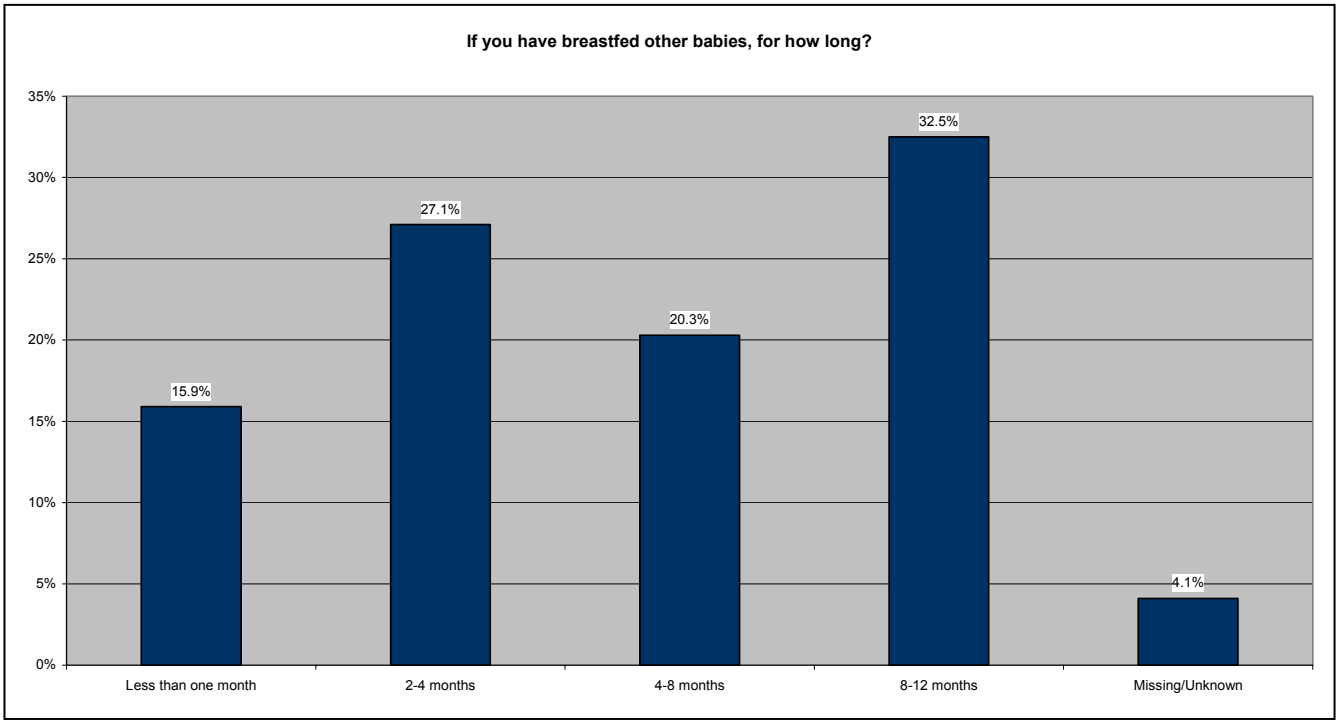

BC Method for those not trying to get pregnant
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
43.8%
30.5%
18.4%
4.0%
3.8%
2.9%
1.0%
0.8%
0.5%
Nothing
Condoms
Oral Contraceptives
Rhythm
Patch
Depoprovera (the shot)
Breast Feeding
Intrauterine Device (IUD)
Diaphragm

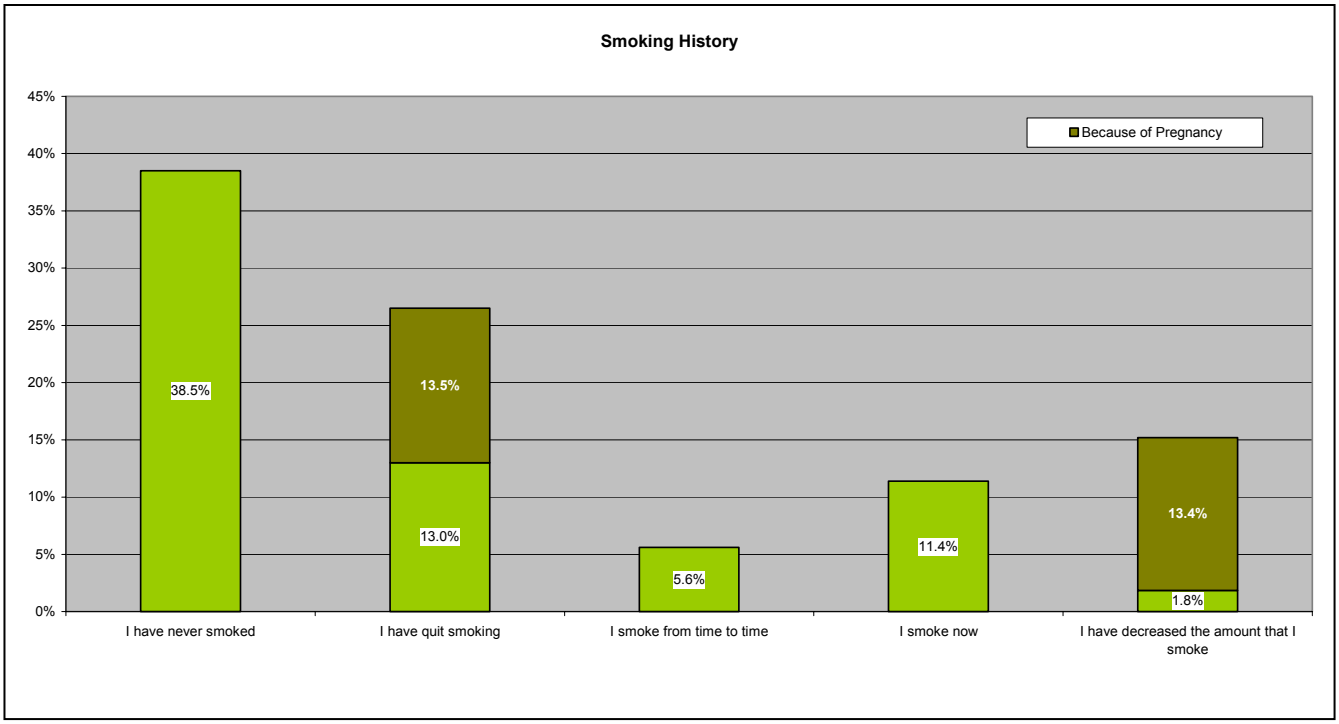

If not using anything, why not?
35%
30%
25%
20%
15%
10%
5%
0%
30.8%
9.8%
9.1%
7.2%
5.8%
5.4%
4.7%
4.3%
3.6%
3.3%
3.3%
1.8%
0.7%
I did not think I could get pregnant/partner was sterile
OK if pregnant
Too expensive
Symptoms
Inconsistent use/Inconsitent relationship
My partner does not want us to use anything
Made a mistake
Didn't think about it
Religious reasons
Not covered by insurance
Choose not to
Not available at the time
I thought I needed parental permission

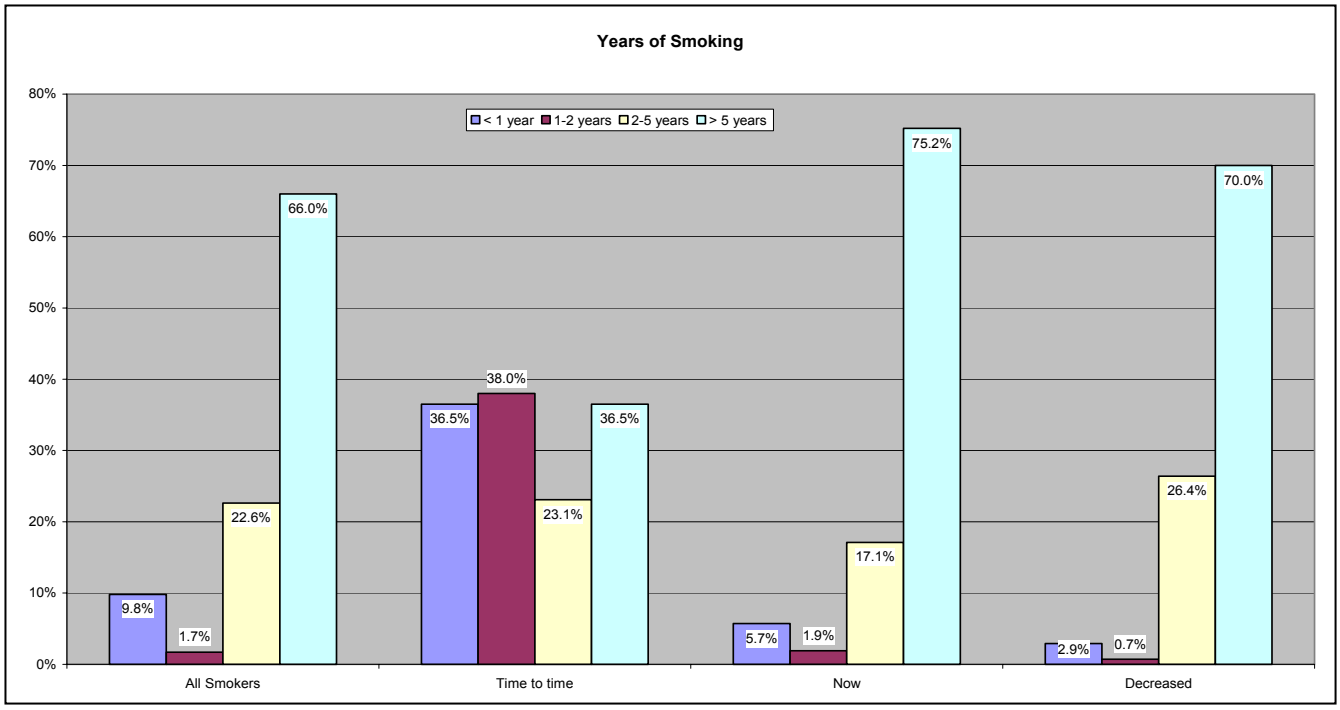

Age at First Intercourse
70%
60%
50%
40%
30%
20%
10%
0%
8.1%
17.0%
64.1%
9.4%
1.2%
< 10
10-14
15-19
20-24
25+

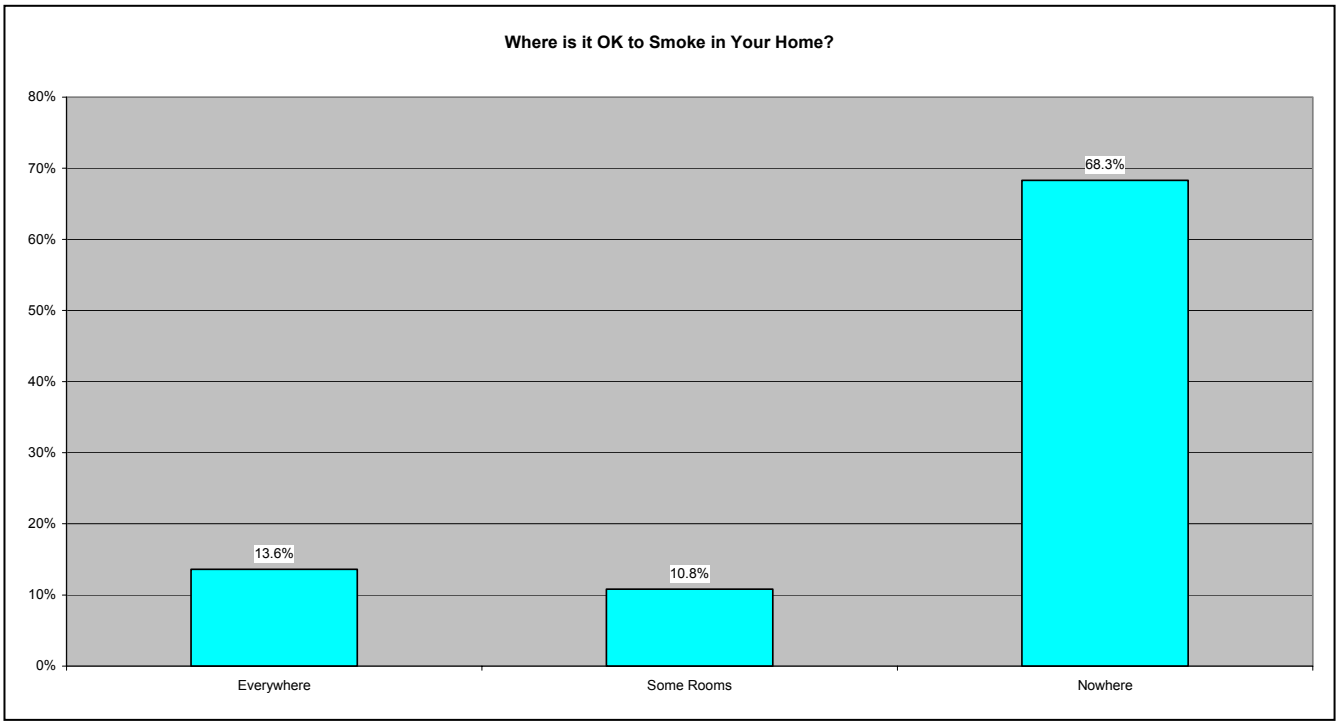

Sexual Partners
80%
70%
60%
50%
40%
30%
20%
10%
0%
Lifetime partners
Partner in the Past Year
18.6%
71.2%
32.0%
19.6%
23.6%
1.2%
6.4%
0.4%
2.0%
0.0%
5.2%
0.1%
12.1%
7.5%
1
2-4
5-9
10-14
15-19
20+
Missing/Unknown

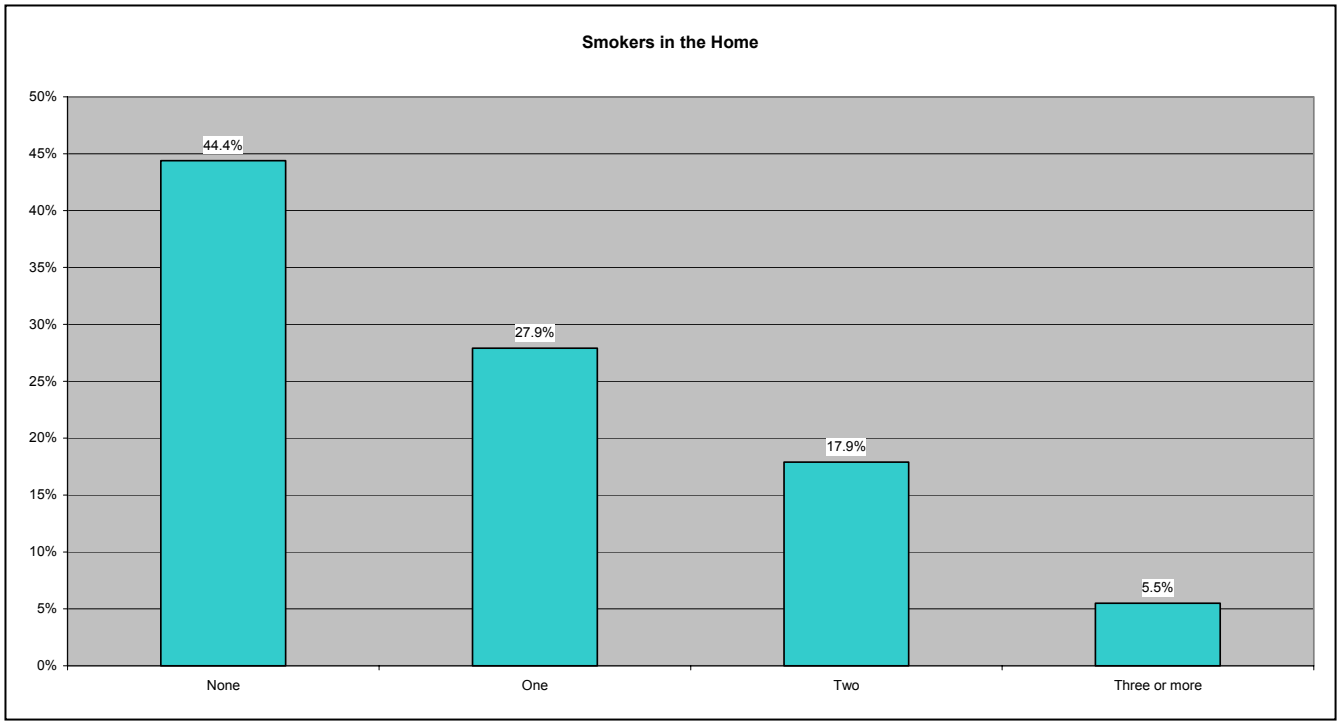

Parenting Options
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
94.2%
1.7%
77.2%
31.6%
Do you plan to raise this baby?
Would you consider placing this baby for adoption?
Do you plan to breastfeed?
Have you breastfed other babies?

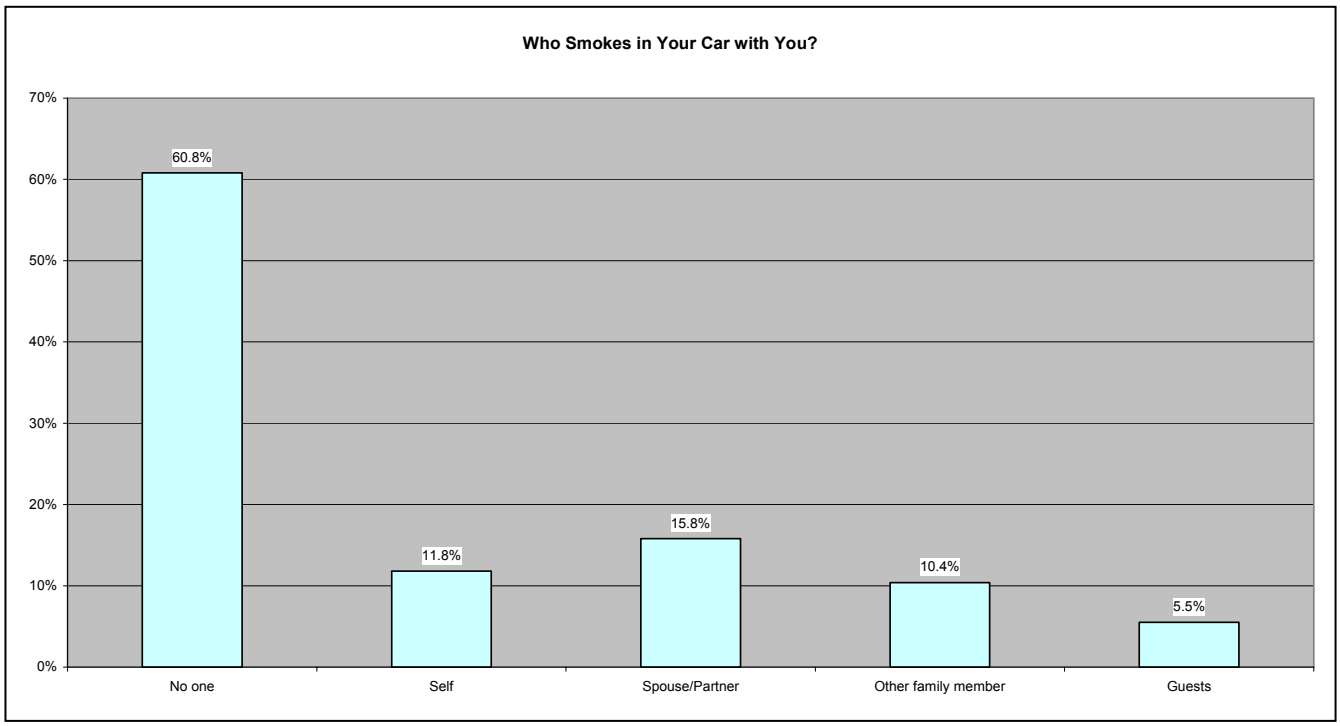

If you have breastfed other babies, for how long?
35%
30%
25%
20%
15%
10%
5%
0%
15.9%
27.1%
20.3%
32.5%
4.1%
Less than one month
2-4 months
4-8 months
8-12 months
Missing/Unknown

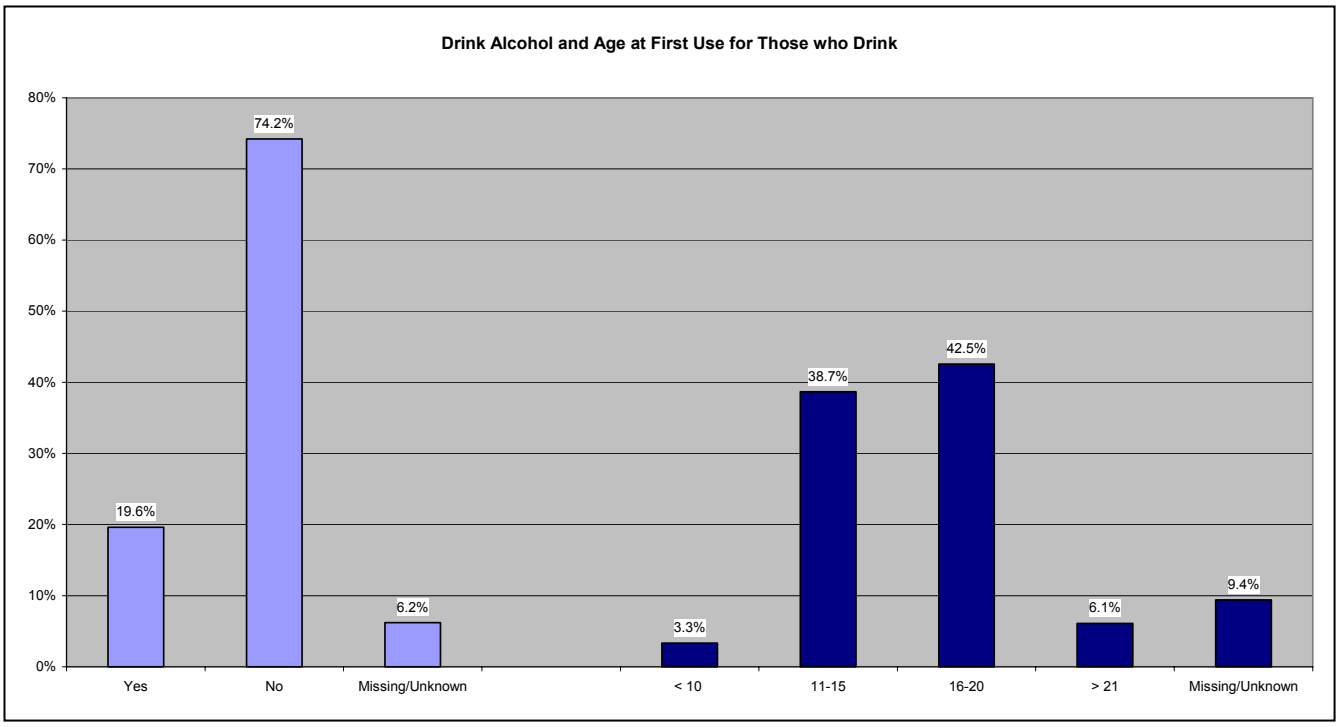

Smoking History
Because of Pregnancy
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
38.5%
13.5%
13.0%
5.6%
11.4%
13.4%
1.8%
I have never smoked
I have quit smoking
I smoke from time to time
I smoke now
I have decreased the amount that I smoke

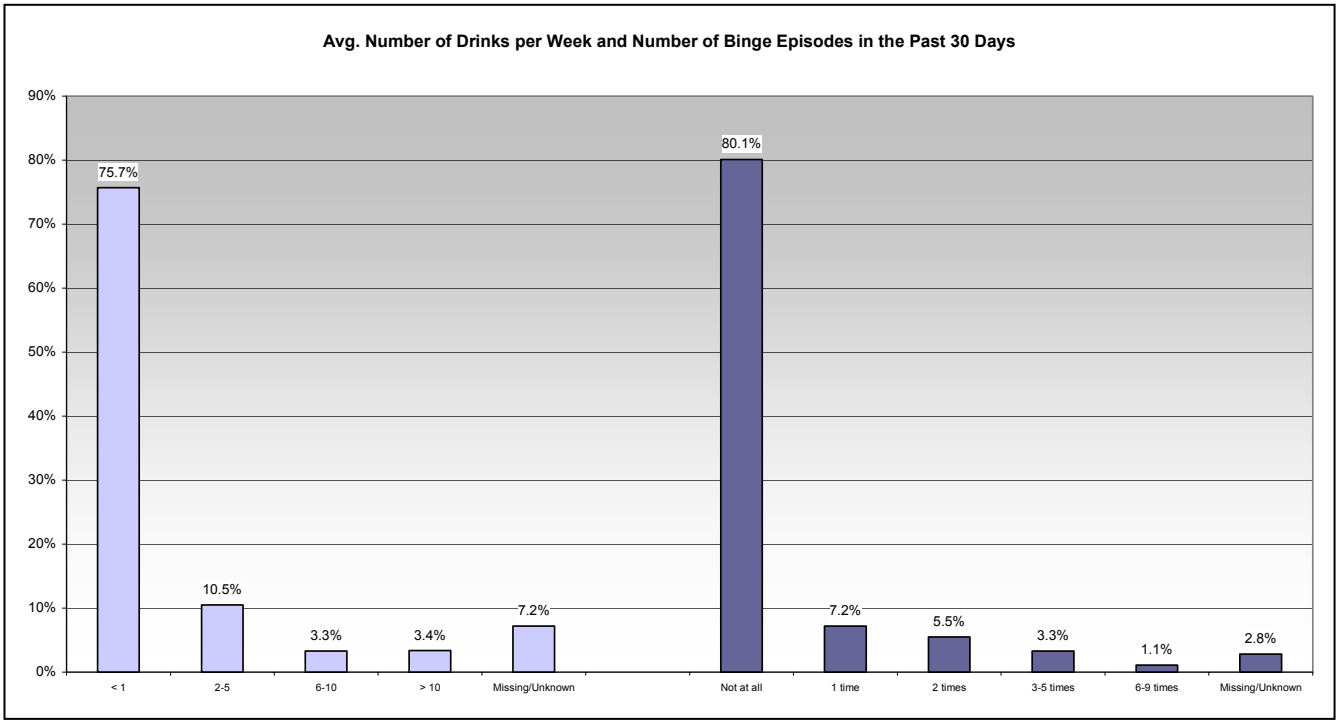

Years of Smoking
80%
70%
60%
50%
40%
30%
20%
10%
0%
< 1 year
1-2 years
2-5 years
> 5 years
9.8%
1.7%
22.6%
66.0%
36.5%
38.0%
23.1%
36.5%
5.7%
1.9%
17.1%
75.2%
2.9%
0.7%
26.4%
70.0%
All Smokers
Time to time
Now
Decreased

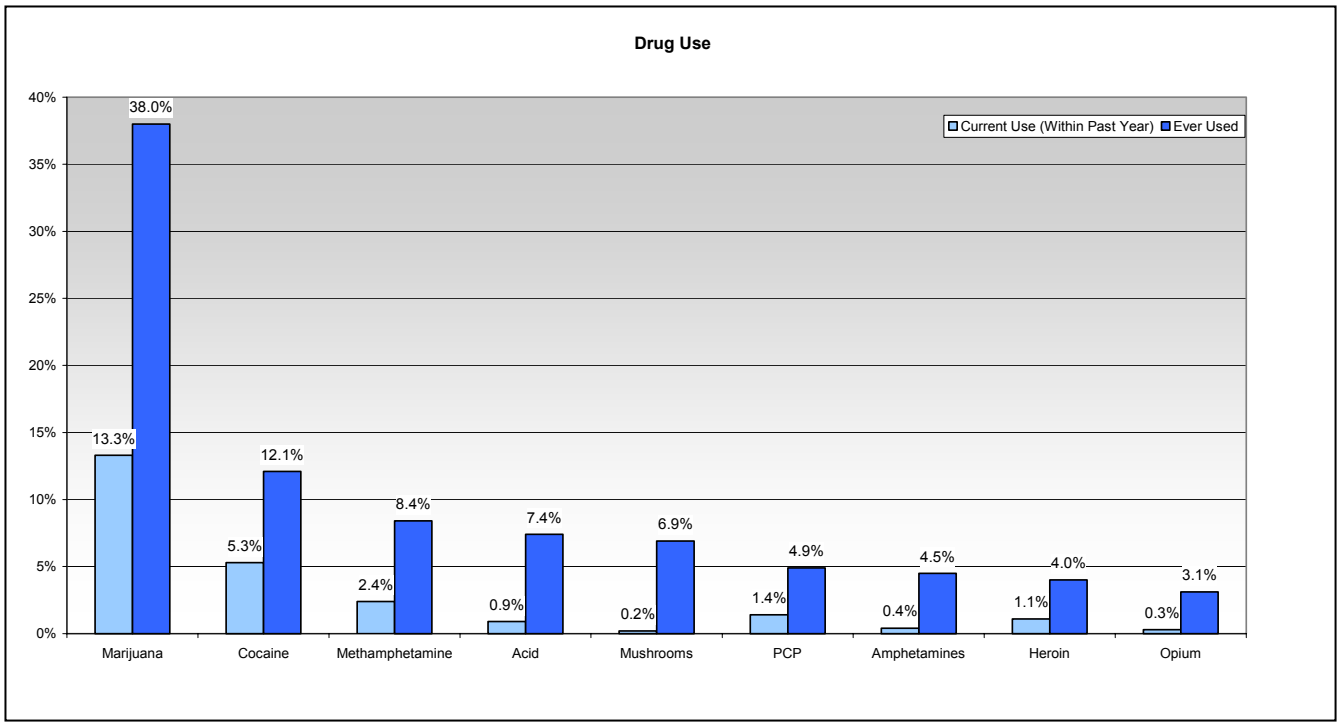

Where is it OK to Smoke in Your Home?
80%
70%
60%
50%
40%
30%
20%
10%
0%
13.6%
10.8%
68.3%
Everywhere
Some Rooms
Nowhere

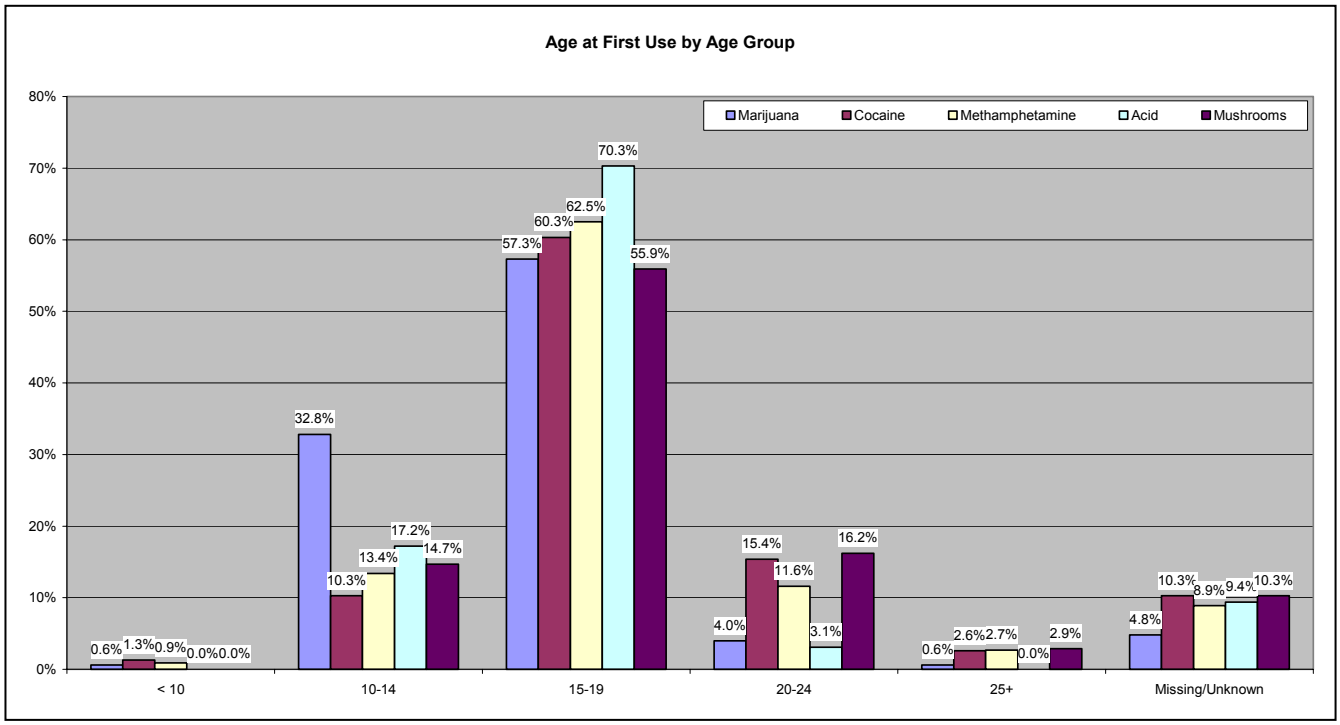

Smokers in the Home
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
44.4%
27.9%
17.9%
5.5%
None
One
Two
Three or more

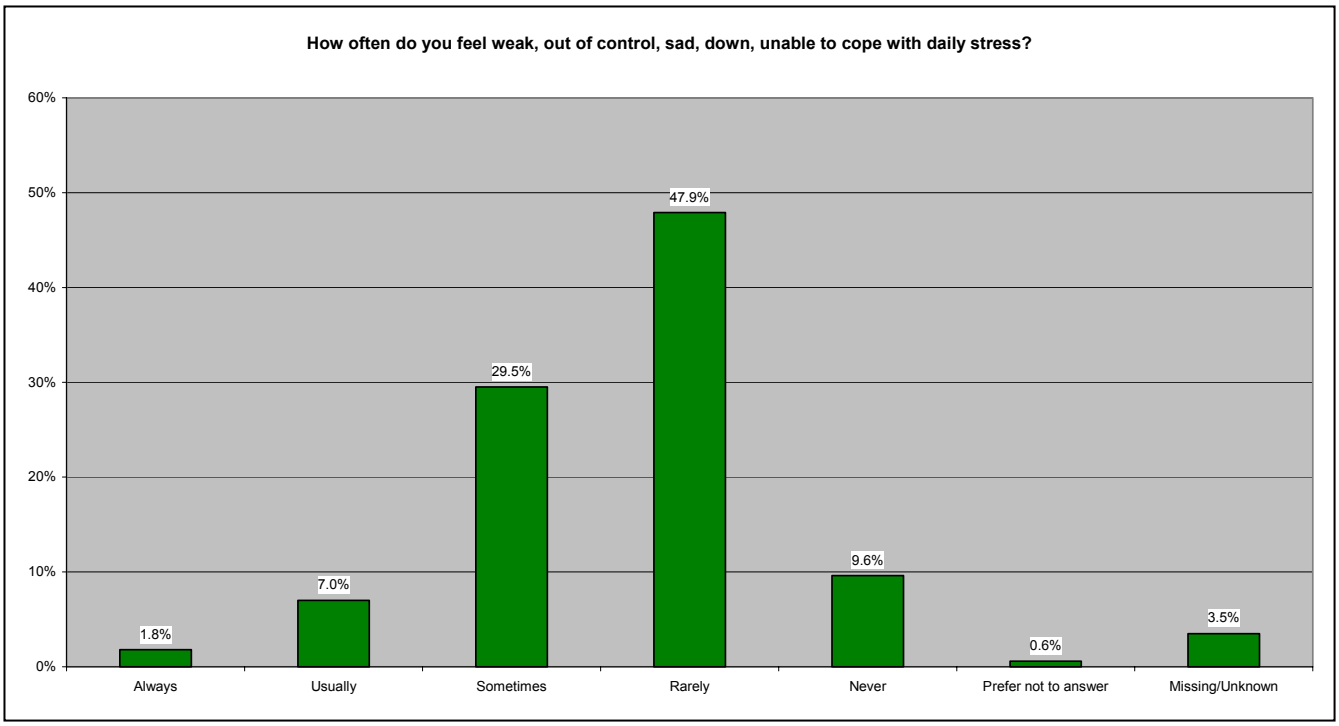

Who Smokes in Your Car with You?
70%
60%
50%
40%
30%
20%
10%
0%
60.8%
11.8%
15.8%
10.4%
5.5%
No one
Self
Spouse/Partner
Other family member
Guests

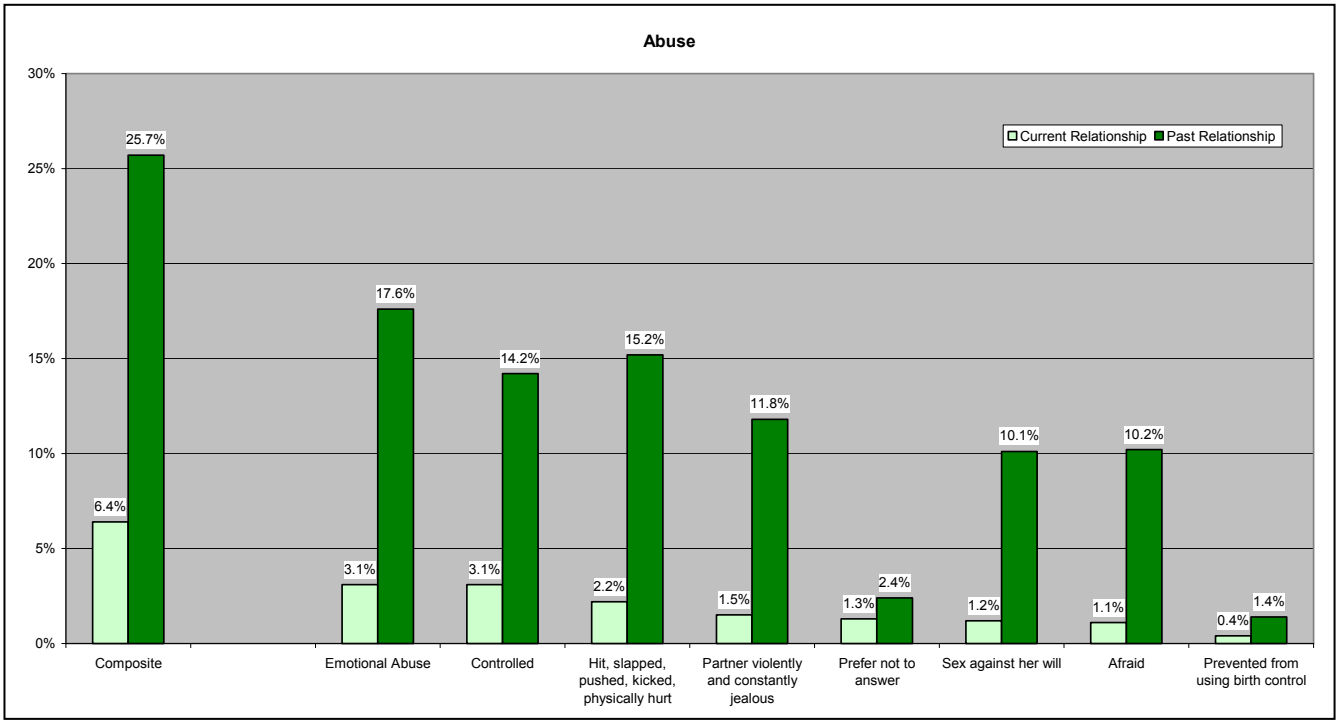

Drink Alcohol and Age at First Use for Those who Drink
80%
70%
60%
50%
40%
30%
20%
10%
0%
74.2%
19.6%
6.2%
3.3%
38.7%
42.5%
6.1%
9.4%
Yes
No
Missing/Unknown
< 10
11-15
16-20
> 21
Missing/Unknown

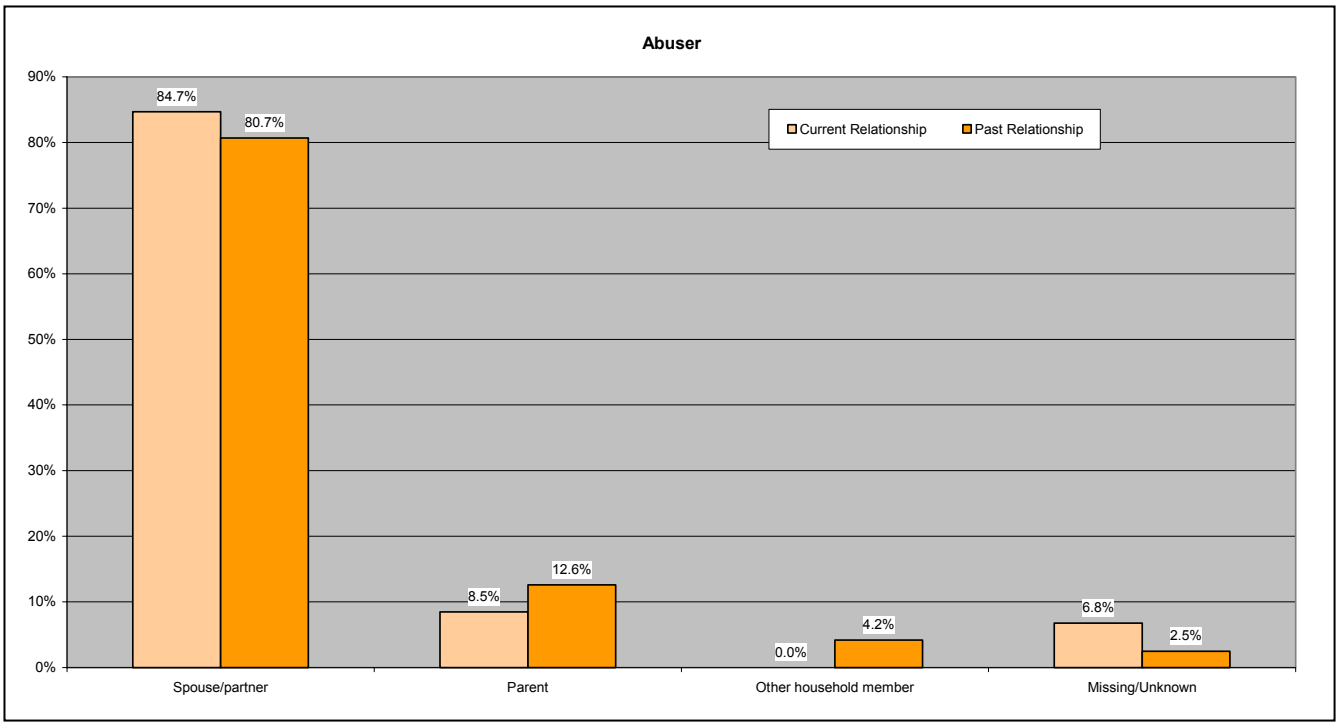

Avg. Number of Drinks per Week and Number of Binge Episodes in the Past 30 Days
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
75.7%
10.5%
3.3%
3.4%
7.2%
80.1%
7.2%
5.5%
3.3%
1.1%
2.8%
< 1
2-5
6-10
> 10
Missing/Unknown
Not at all
1 time
2 times
3-5 times
6-9 times
Missing/Unknown

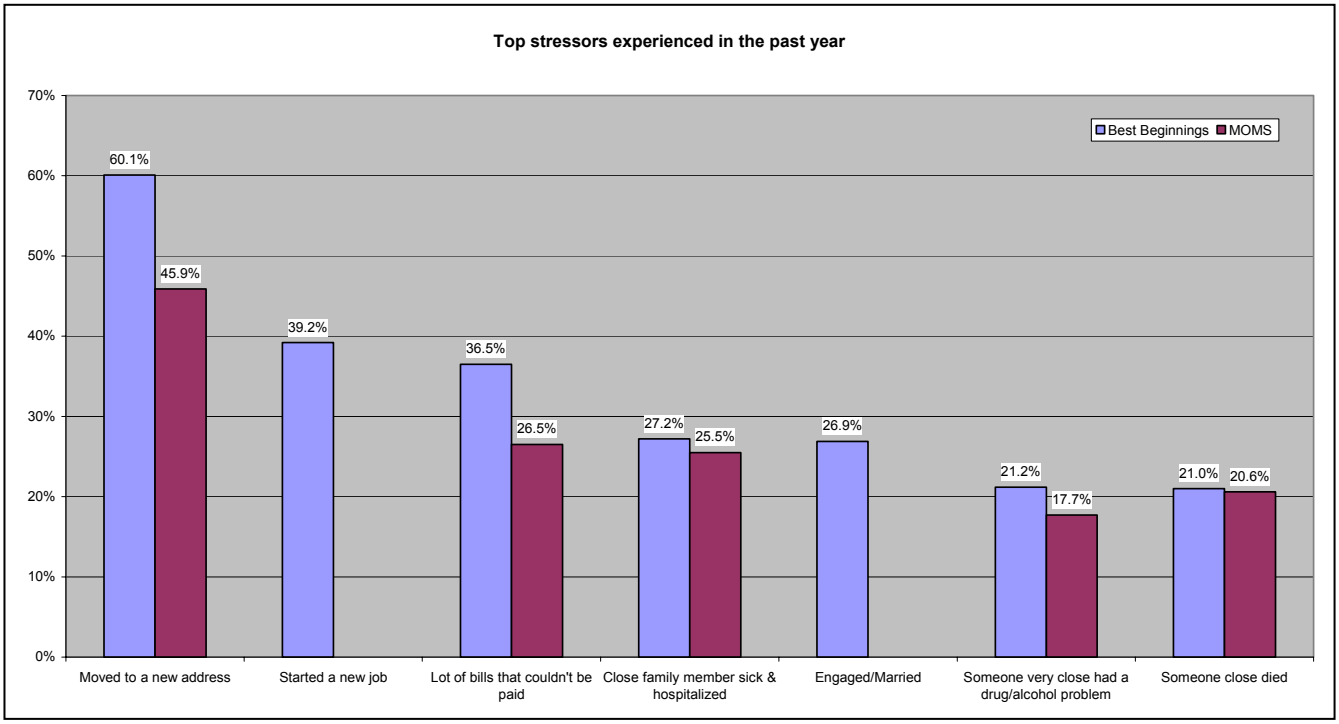

Drug Use
Current Use (Within Past Year)
Ever Used
40%
35%
30%
25%
20%
15%
10%
5%
0%
38.0%
13.3%
12.1%
5.3%
8.4%
2.4%
7.4%
0.9%
6.9%
0.2%
4.9%
1.4%
4.5%
0.4%
4.0%
1.1%
3.1%
0.3%
Marijuana
Cocaine
Methamphetamine
Acid
Mushrooms
PCP
Amphetamines
Heroin
Opium

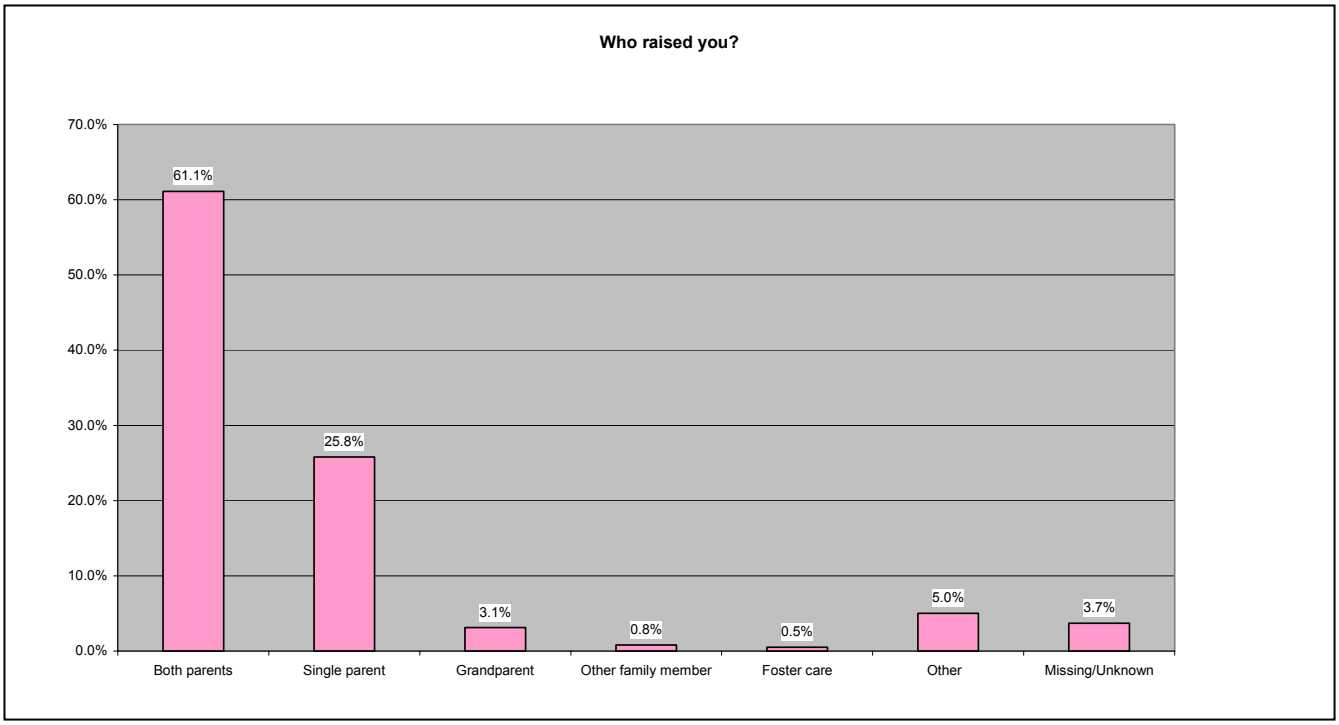

Age at First Use by Age Group
Marijuana
Cocaine
Methamphetamine
Acid
Mushrooms
80%
70%
60%
50%
40%
30%
20%
10%
0%
0.6%
1.3%
0.9%
0.0%
0.0%
32.8%
10.3%
13.4%
17.2%
14.7%
57.3%
60.3%
62.5%
70.3%
55.9%
4.0%
15.4%
11.6%
3.1%
16.2%
0.6%
2.6%
2.7%
0.0%
2.9%
4.8%
10.3%
8.9%
9.4%
10.3%
< 10
10-14
15-19
20-24
25+
Missing/Unknown

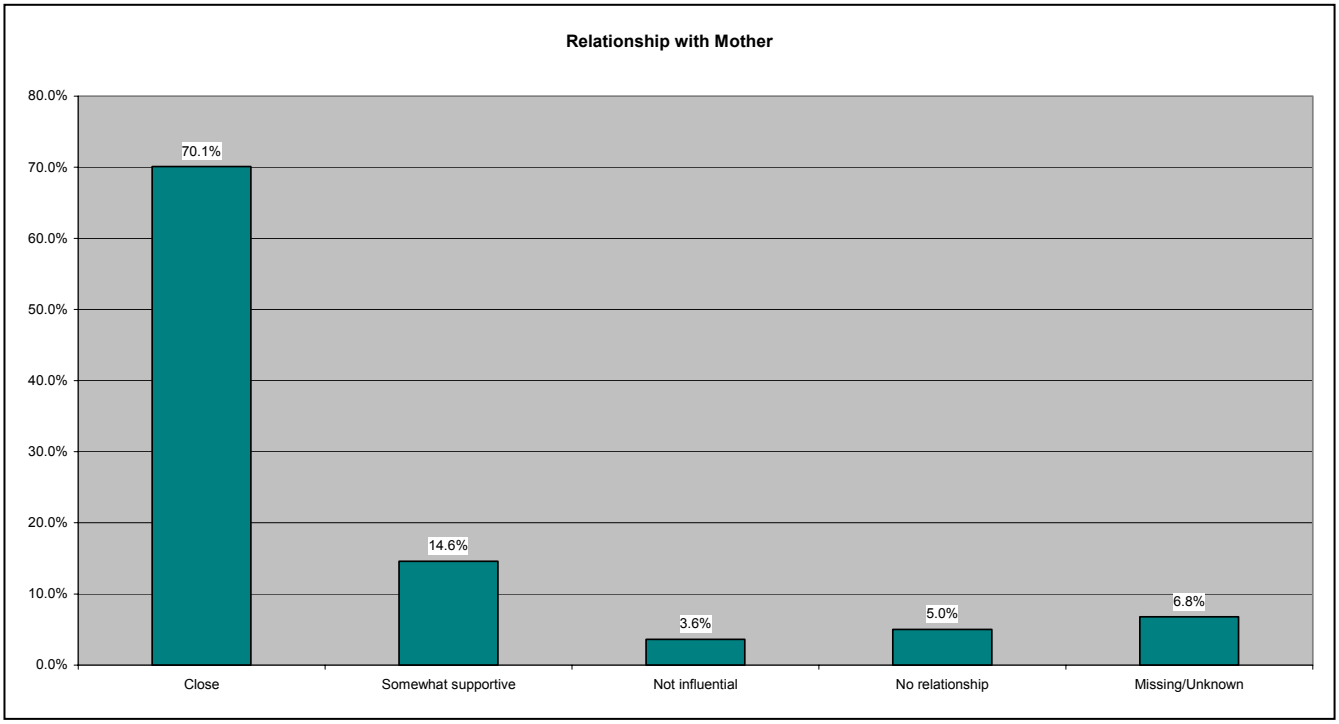

How often do you feel weak, out of control, sad, down, unable to cope with daily stress?
60%
50%
40%
30%
20%
10%
0%
1.8%
7.0%
29.5%
47.9%
9.6%
0.6%
3.5%
Always
Usually
Sometimes
Rarely
Never
Prefer not to answer
Missing/Unknown

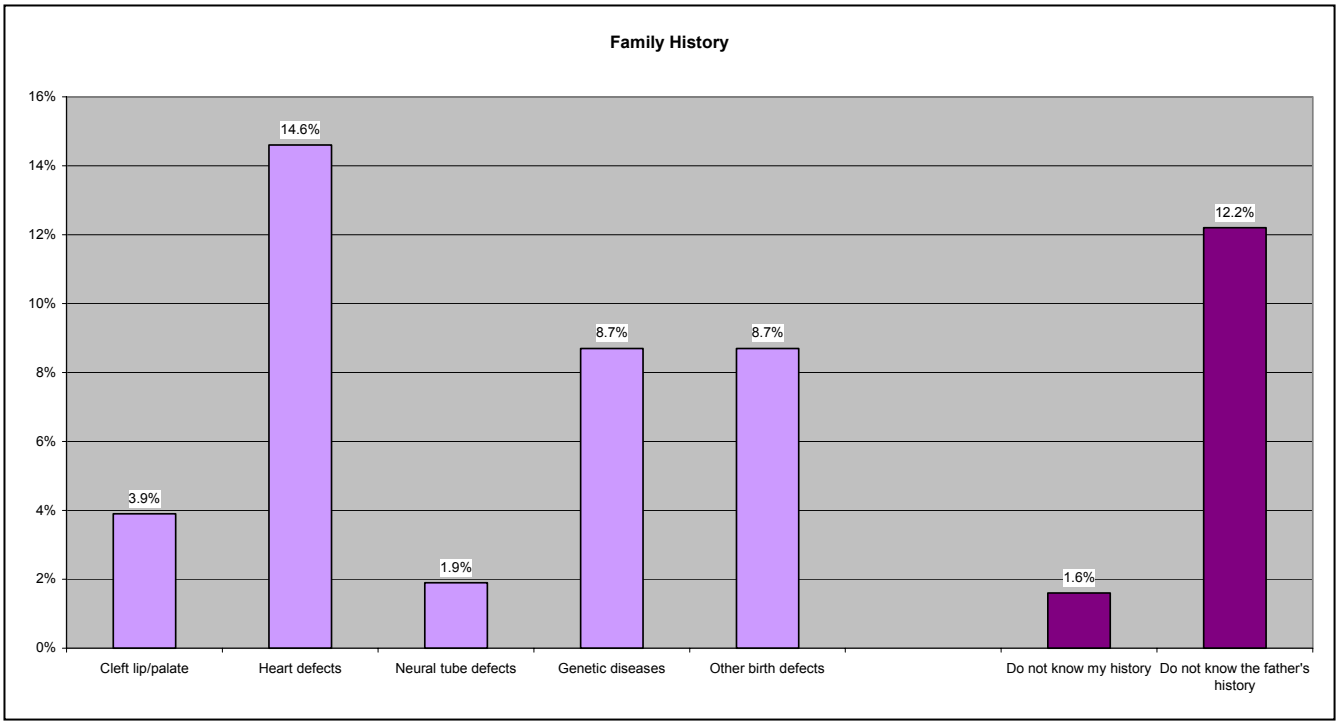

Abuse
30%
25%
20%
15%
10%
5%
0%
Current Relationship
Past Relationship
6.4%
25.7%
3.1%
17.6%
3.1%
14.2%
2.2%
15.2%
1.5%
11.8%
1.3%
2.4%
1.2%
10.1%
1.1%
10.2%
0.4%
1.4%
Composite
Emotional Abuse
Controlled
Hit, slapped, pushed, kicked, physically hurt
Partner violently and constantly jealous
Prefer not to answer
Sex against her will
Afraid
Prevented from using birth control

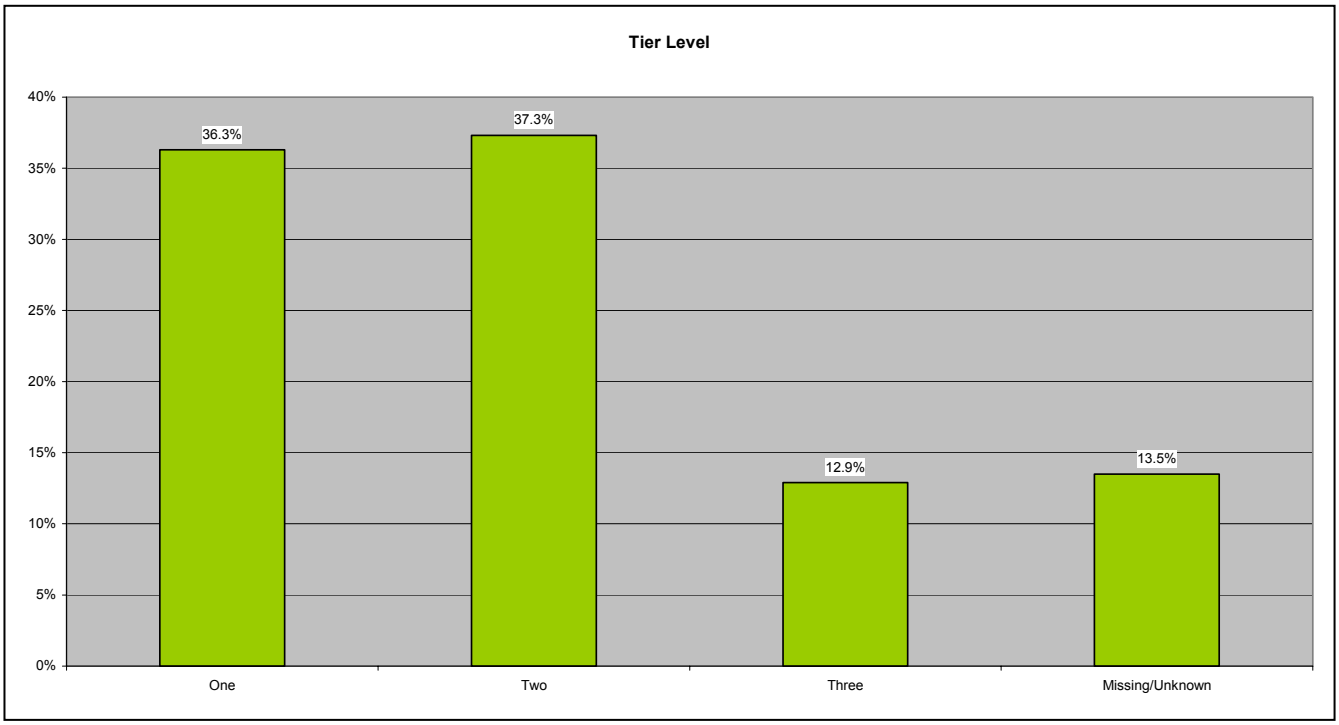

Abuser
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
84.7%
80.7%
8.5%
12.6%
0.0%
4.2%
6.8%
2.5%
Current Relationship
Past Relationship
Spouse/partner
Parent
Other household member
Missing/Unknown


Top stressors experienced in the past year
70%
60%
50%
40%
30%
20%
10%
0%
Best Beginnings
MOMS
60.1%
45.9%
39.2%
36.5%
26.5%
27.2%
25.5%
26.9%
21.2%
17.7%
21.0%
20.6%
Moved to a new address
Started a new job
Lot of bills that couldn't be paid
Close family member sick & hospitalized
Engaged/Married
Someone very close had a drug/alcohol problem
Someone close died


Who raised you?
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
61.1%
25.8%
3.1%
0.8%
0.5%
5.0%
3.7%
Both parents
Single parent
Grandparent
Other family member
Foster care
Other
Missing/Unknown


Relationship with Mother
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
70.1%
14.6%
3.6%
5.0%
6.8%
Close
Somewhat supportive
Not influential
No relationship
Missing/Unknown


Family History
16%
14%
12%
10%
8%
6%
4%
2%
0%
3.9%
14.6%
1.9%
8.7%
8.7%
1.6%
12.2%
Cleft lip/palate
Heart defects
Neural tube defects
Genetic diseases
Other birth defects
Do not know my history
Do not know the father's history


Tier Level
40%
35%
30%
25%
20%
15%
10%
5%
0%
36.3%
37.3%
12.9%
13.5%
One
Two
Three
Missing/Unknown

References

[1] Wyoming Department of Health, Vital Records. 2002.
[2] Crotsenberg, Angela. "Building a Statistical Model to Explain Low Birth Weight in Wyoming". Master's thesis, Colorado State University, 2004.
[3] Colorado Department of Public Health and Environment. "Tipping the Scales: Weighing in on Solutions to the Low Birth Weight Problem in Colorado". August 2000.
[4] Healthy People 2010: Understanding and Improving Health. US Department of Health and Human Services. Washington, DC: US Government Printing Office. 2000.
[5] Ellis, Bernard H., et al. Wyoming Reproductive Health Study. May 1999.
[6] March of Dimes.